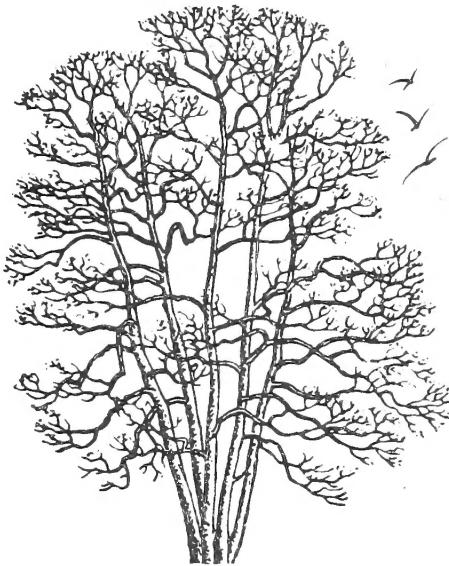


THE
EDINBURGH
NATURAL HISTORY SOCIETY



JOURNAL

-1975-

EDINBURGH NATURAL HISTORY SOCIETY

1975

CONTENTS

	Page
EDITORIAL	2
THE COUNTRYSIDE IN EDINBURGH EXHIBITION	3
NATIONAL MEETING OF NATURAL HISTORY SOCIETIES	4
THE GEOLOGY OF EDINBURGH	5
THE DALKEITH NATURE TRAILS 1975	6
THE FLORA OF THE UNION CANAL	8
SOME NOTES ON NATURAL HISTORY	11
OBSERVATIONS MADE BY MEMBERS DURING 1975	16
CORRESPONDENCE	18
WINTER INDOOR MEETINGS 1975	19
FIELDWORK AND EXCURSIONS - OUTDOOR ACTIVITIES	22
REPORTS AND EXCERPTS FROM REPORTS	24
LIBRARY LIST	42

EDITORIAL

The Editorial Committee would like to thank members for their lively and interesting contributions, whether they be short observations of a few lines or longer notes, reports or articles.

It has not been possible to publish extracts from all reports, and lists of species, seen by members on Society outings or out on their own, have been omitted. Readers who would like to see these lists or remind themselves of details of any excursion, should write, enclosing a stamped addressed envelope, to the Records Secretary, who will be pleased to supply information.

A highlight of the activities of the Society in 1975 was helping in the presentation of the Countryside in Edinburgh Exhibition. In the first article of the Journal, Mrs. E. Hamilton, who with skill and imagination, organised our displays, describes the Exhibition.

During the year work began on the Field Work Projects - the Corstorphine Hill Project and the Union Canal Project - sponsored by the Carnegie United Kingdom Trust and the Council for Nature. Preliminary reports, setting out methods of working will be found in the report section. It is hoped to be able to publish some of the results in the 1976 Journal.

We should like to thank the President for her continuing enthusiastic work for the Society, ever widening its sphere of influence. Amongst her activities she spoke on behalf of Natural History Societies at the BIOREC (Biological Recording) in Scotland Conference held at Dundee in April and with the Secretary represented the Society at the National Meeting of Natural History Societies (see report on page 4).

It is good to be able, once again, to have the opportunity of thanking the Honorary Secretary and her helpers for their untiring secretarial work and the Honorary Treasurer who looks after our finances. We also thank the Excursion Committee who have continued to arrange exciting and enjoyable outings - this year, not only did they lead us up to near the top of Perthshire's highest mountain, but also well over a quarter of a mile towards the centre of the earth; the Catering Group who are always ready with refreshments at the end of meetings and finally Gordon Finnie and his associates for the interest and care which they show in the printing of the Journal.

We learned with sorrow of the death of a fellow member, Mr. R. Robertson.

During the year the following members resigned on leaving Edinburgh:

Stephen Calder, Dr. G.H. Mitchell, Mrs. Joan Tulip

We wish them well in their new homes.

Other resignations have been received from:

Dr. V.E. McM. Davey, Mrs. L.M. Millett, Miss C.M. Milne, Mr. Jas. Milne,
Miss S. Wallace, Miss E. Wildorf, Miss H. Soave.

THE COUNTRYSIDE IN EDINBURGH EXHIBITION - APRIL 1975

The Edinburgh Natural History Society, along with other wildlife and amenity associations, was invited by the Edinburgh Parks Department to take part in this exhibition, held in Meadowbank from 8th to 17th April. The invitation was approved and accepted by a special meeting of Council on 18th November 1974. A committee was appointed, consisting of Miss J. Raeburn, Mrs. E. Smith, Mr. C. Rawcliffe, Dr. W. Fairbairn and Mr. C. Warren, with Mrs. E. Hamilton as convener. Substantial help was also given by Miss H. Jackson, Miss R. Harper and Mr. I. Sime.

Much thought was given as to what we should show, at what level and how best it could be presented. There is such a wealth of wild life interest and so great a variety of habitat within the city boundaries from which to select that choice was difficult. Bearing in mind that the exhibition was for the general public, some of whom would be knowledgeable, others less so and some unaware of much of the natural life in Edinburgh, it was decided to base exhibits on the basic habitats of land and water, choosing from these, woodland, slow-moving water, rocky and sandy seashores.

As well, an attempt was made to spread an attitude to wildlife consonant with its well-being; as we all know, the concerned naturalist, who can hardly be other than a conservationist, respects the wildlife he enjoys and refrains from collecting except under certain circumstances. This was given concrete expression in a table of exhibits labelled 'Non-harmful Collecting'. There could be seen some of the varied objects found on many a country ramble - the wing of a bird, a crow-sucked egg and mammal bones to name a few. Then, to give people, particularly children, an opportunity to handle and examine natural objects, a 'Please Touch' table was set up, bearing such things as feathers, deer antlers and shells. Both these tables were very popular and helpers were kept busy answering, or trying to answer, innumerable questions from the young.

The inter-relationship of wildlife was brought out in the display of owl pellet analysis and pictorial charts of simple food webs for woodland and seashore. Material for these was gathered on Corstorphine Hill, at Cramond and at Joppa. The shore model itself was of great interest to the young, many of whom, enjoying the feel of feathers, stroked the stuffed seagulls. We had, too, a table of geological material, showing fossils and rocks found in the area. This was backed by a screen with diagrammatic sketches of some of the notable geological features in the city. These are shown in a later article. Competitive skills were given outlet in two attractive quiz boards which tested one's knowledge of mammals and wild flowers, all to be seen within the Edinburgh area. The aquarium, containing mud and water from the Union Canal, showed interesting spring-time development of invertebrate freshwater fauna. Bird lovers were not left out and a map of the city, with pictures of interesting bird species, showed where these could be found.

These exhibits, outlined above, occupied an area 30 feet square. Many members of the Society helped in assembling, making and manning the stands. We are indebted to the Royal Scottish Museum and other kind people for the loan of several models. Our stand was part of an impressive exhibition which included, as well as displays by the Royal Society for the Protection of Birds, the Scottish Wildlife Trust and the Scottish Inland Waterways Association, many exhibits of natural history projects carried out by Edinburgh schools, a fine display of natural history books and the staging by the Parks Department of a life-size stream and woodland area with real trees and appropriate stuffed mammals and birds.

The exhibition was open for nearly a fortnight and was visited by almost eleven thousand people. A week-day feature was the arrival in the morning and early afternoon of busloads of school children of all ages. As if blown by a gale of wind, they entered by the east door, advanced and engulfed each stand in turn. Sometimes they stopped with their teachers to listen or discuss exhibits. Many asked questions. Some took notes. Their interest was evident. The response from both children and adults showed much sympathy for wild life and left no doubt as to the worthwhileness of the project. It is hoped new interests were aroused and that potential naturalists were encouraged on their way. However this may be, and there is no certain way of knowing, those of us in the Society who had to do with the exhibition felt our efforts had been well rewarded and that we, ourselves, had benefited from the stimulation given by taking part in such an event.

E. Hamilton

NATIONAL MEETING OF NATURAL HISTORY SOCIETIES
THE COUNCIL FOR NATURE

The Council for Nature held a meeting for representatives of Natural History Societies and similar amateur bodies at Lancaster University on the 27th and 28th September 1975.

The meeting was well attended with about 200 people present, mainly from North and Central England, though Scotland was well represented, six members going from this Society.

Lectures covered a wide range of subjects, and lecturers included Dr. T.T. Macan and Dr. Ernest Neal, both well known for their authorship, Mr. Peter Condor of the R.S.P.B. and Dr. P. Gay of the Nature Conservancy Council. Dr. Gay spoke of the need for information collected from all sources including Natural History Societies to be satisfactorily stored and utilised - a theme which was also discussed by Miss Margaret Hartley who has been responsible along with others in setting up a Local Biological Records Centre at Bradford Museum.

Mr. Paul Sowan spoke briefly on the running of a large, active and successful Society in Croydon and his talk stimulated a plethora of questions and interested comment.

The meeting ended with visits to the R.S.P.B. reserves at Morecambe Bay and Leighton Moss. Apart from the enjoyment of the lectures and outings, useful contacts were made with members of neighbouring societies, and problems common to all were discussed.

E. Farquharson

THE FIELD-CLUB FLORA OF THE LOTHIANS 1934

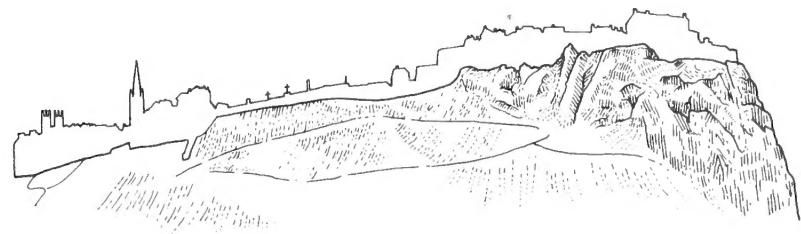
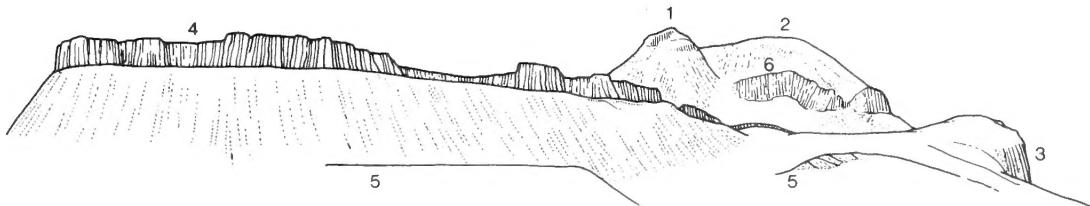
Copies of this Flora, price £1.00 each, may be obtained by applying to the Honorary Treasurer, or at any Winter Meeting of the Society.

JOURNALS OF THE EDINBURGH NATURAL HISTORY SOCIETY

Copies of the 1975 Journal may be obtained, price 25p each, from the Honorary Secretary. Certain other back numbers are also available.

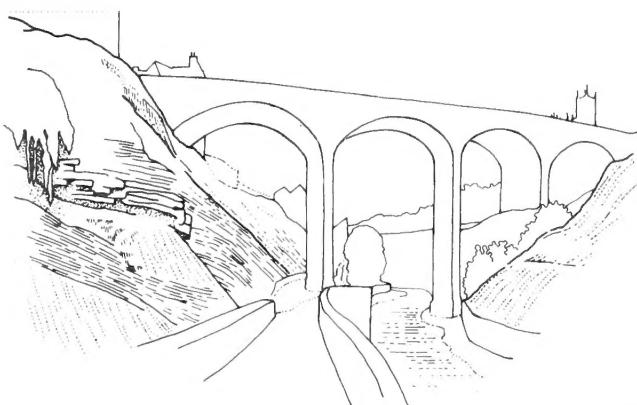
The Secretary is often asked for earlier editions of the Journal. If any member has any copy, no longer wanted, she would be very pleased to receive it.

THE GEOLOGY OF EDINBURGH

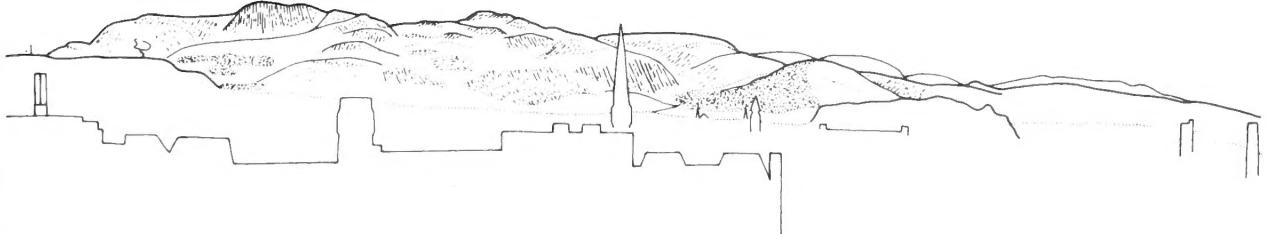


CRAG AND TAIL

The hard volcanic rock of the Castle Hill acted as a bastion against the ice sheet advancing from the west. It protected the rock of the esplanade and the Royal Mile which remained as a 'tail' behind the 'crag' of the Castle Rock.



THE STEEP GORGE AT THE DEAN BRIDGE
cut in the Wardie Shales by the post glacial
stream of the Water of Leith



PENTLAND HILLS

Volcanic rocks of Old Red Sand Stone age

E.H. JACKSON
I.F. SIME

THE DALKEITH NATURE TRAILS - 1975

Two nature trails were selected in the Dalkeith Estate, the property of the Buccleuch Estates Limited, in the early part of 1975 and were opened to the public from June to the end of September.

The two trails cover part of the southern, very attractive portion of the Dalkeith woodlands, including the North Esk and South Esk rivers, starting from near the main entrance to the estate at the north end of Dalkeith High Street. It is intended that this part of the estate should be open to the public, including schools and students, so that Nature can be enjoyed and studied. An excellent guide book has been produced which gives useful information. There is an information centre and gift shop at the main gate of the estate where tickets and guide books are available. A warden looks after the nature trails and is ready to give any administrative assistance.

The trails include twenty-four points which have been marked on the ground with numbered posts and with intermediate direction stakes. Notes have been prepared in the guide book for each point, describing items of interest including, where appropriate, the geology, soils, ground and tree vegetation as well as the birds and other animals likely to be seen. The first trail covers fourteen points and takes about two hours to traverse, while the second, which has ten points, takes a rather shorter time: each is about one and a half miles long.

The guide book contains four attractively executed drawings which include a family of hedgehogs, a male and female mallard, the ubiquitous rabbit and an excellent drawing of the historic Conservatory on the bank of the South Esk, which is the central feature at one of the points on the first trail; a striking diagrammatic map of the two trails is also included. The map shows the routes to be taken and the positions of the numbered posts so that the walks can be followed easily; the first trail ends at point fourteen near Dalkeith House and a forest ride is followed back to the starting point, while the second trail returns to the same place.

The start of the first trail is on the road from the main gate and is more or less opposite the historic Dalkeith House - formerly Dalkeith Palace, built on the site of the original Dalkeith Castle, part of which is still visible on the western side of the building. Point 1 is near the start of the former woodland Dark Walk which is recorded on the 1756 map of General Roy; this avenue ran down to the South Esk river and to one of the exits from the estate. The next point is on the site of the 'wilderness' of over two hundred years ago in which plots and radiating paths produced an attractive, if artificial, setting which is also represented in the General Roy map; now the area has a flourishing young stand of oak, beech and sycamore. The trail continues down to the South Esk and the Old Cow Bridge built over rocky shallows where the Roman troops possibly crossed the river when marching from the fort at Inveresk to the Roman camp at Eskbank. Timber picnic tables and seats situated a little below the bridge provide a useful viewpoint, not only for the ancient bridge, but also for the moorhens and other water birds in the vicinity.

The trail continues down stream to the next footbridge over the river on whose banks can be seen striated sandstone rock and perched river terraces which usually support a rich ground vegetation. On the right bank below this bridge there is a unusual riverside walk, part of which traverses two short tunnels bored through a minor sandstone cliff: at the lower end of the second there is a small raised river terrace about fifteen feet above

the river level, with a natural and quite perfect amphitheatre (with a small retaining wall), sloping upwards above the river terrace. This is opposite the Conservatory on the other bank, erected over 150 years ago and where doubtless there were orchestras and singers to delight the audience in the amphitheatre in a wonderful sylvan setting. Leaving the Conservatory on the left, the trail then passes the present kennels, possibly the site of the ancient stables, and continues to a small crest at no distance from Dalkeith House: near this crest geological drilling was carried out over twenty years ago and interesting information was obtained. Clay with stones and boulders occurs for some eighteen feet, followed by sandstone and red clay for about 300 feet, followed immediately by the first trace of coal: traces continue to be found until about 700 feet where the first seam of coal occurs.

The second trail starts a little beyond this point and continues to the Montagu Bridge high over the North Esk river; the bridge was built about 1792 by Adam and is famous for its spectacular appearance and beautiful lines, best seen from the left bank at point 17 a little below the bridge. Excellent views are obtained from Montagu Bridge, southwards to Dalkeith House and the flat of Lugton Haugh and northwards, down-river, towards Dalkeith Old Wood of historic fame, to the meeting point of the two rivers to form the River Esk and finally towards Inveresk and the Firth of Forth.

The trail then follows the west boundary of Lugton Haugh along the edge of the minor escarpment - the former river bank of the Late Glacial flood waters from the Pentland Hills' melting ice cap at the end of the last glaciation about 10,000 years ago; this perched river terrace is a sheltered area with a rich alluvial soil carrying a wealth of wild flowers throughout the seasons, and a rich woodland containing leaftrees and conifers both indigenous and exotic. At point 20 there are two Sequoias, the first is the Californian Redwood with its Yew tree like needles; the second is the Wellingtonia recognised by its soft-red bark with dozens of small cavities (used by the smaller birds for shelter and for nesting), and by its more primitive scale-like needles.

The forest path then descends to the level of the river terrace and later follows the left bank of the North Esk; from it a good view is obtained of the west side of Dalkeith House on the south-west corner of which is incorporated some of the old wall of the early Dalkeith Castle, interesting historically in having belonged to the early Douglases while Princess Margaret, the first of the Tudors in Scotland, occupied the Castle the night before she rode into Edinburgh prior to her marriage to King James IV. The river flat is sheltered by the high steep banks of the ancient river on both sides of the North Esk, giving protection from gale winds in the winter months while tending to produce high temperatures in summer. The fertility of the soil is reflected in the rich ground flora and the vigour of the conifer and leaftree species.

Towards the north end of the Haugh there is a Chile Pine (*Araucaria araucana*), called after the Araucanian Indians who harvest the large seeds; this is the well known 'Monkey Puzzle' which produces a useful timber. At the north end of the woodland the Montagu Bridge is again reached en route to the start of the two trails, which cover such interesting and most attractive woodland, meadow and riverside sites.

W.A. Fairbairn

Note It is intended that the Dalkeith Nature Trails will be open from 16th April to 30th September, during 1976.

THE FLORA OF THE UNION CANAL

The Union Canal, with its long stretch of slowly moving water and its banks and towpath edges, provides the kind of environment for wild life which is becoming rarer in Britain today. Its vegetation may be divided into zones, which in many places merge into one another.

Open water zone

In summer in the open water, or aquatic zone, the brownish-green oval leaf blades of Broad-leaved Pondweed (*Potamogeton natans*), a plant rooted to the bottom, can be seen at the end of long flexible leaf stalks, floating at many places along the whole length of the canal where the water is not deeper than three or four feet. Where dredging has not taken place recently, it may blanket the water from bank to bank. From June onwards its inflorescences of green flowers emerge on very long stalks above the level of the water.

Another rooted plant with floating leaves is Amphibious Bistort (*Polygonum amphibium*), a relation of Red Legs, a well-known plant of waste places. It is not so prevalent as Broad-leaved Pondweed and is found in smaller patches, a specially good area for it being near Winchburgh. In summer it can be distinguished from the Pondweed by its clear green leaves and emergent spikes of pink flowers.

Some rooted plants of the open water zone do not come to the surface. Throughout the length of the canal there is to be found under the surface of the water, the much-branched Canadian Pondweed (*Elodea canadensis*) and the slender Water Starwort (*Callitricha stagnalis*), with its paddle-shaped leaves, some of them forming a star-shaped rosette at the tip of the stem. In some parts, patches of Curled Pondweed (*Potamogeton crispus*), an under-water relation of Broad-leaved Pondweed may be seen, recognised by its rather narrow leaves with wavy edges. The Starwort and Potamogetons are native plants. Canadian Pondweed, on the other hand, was introduced into Britain from America about 1840, and spread rapidly for many years, blocking the waterways. Now, although widespread, it is not abundant.

Very obvious to the walker along the towpath in summer is the floating aquatic, Common Duckweed (*Lemna minor*), often growing in large masses where the light is not restricted by trees. In places it completely covers the water. The plant consists of one small light-green leaf up to four millimetres in diameter and a single root which may be as long as 15 cm though it is usually very much shorter than this, dangling from the lower surface of the leaf into the water and acting as a kind of balancer. It spreads rapidly by budding. The buds form on the side of the leaf and quickly separate to form new plants.

Another species of Duckweed (*L. trisulca*) grows under the water often amongst the green slime formed by primitive water plants belonging to the algae, or amongst Canadian Pondweed or Water Starwort. In this species, after budding, the new leaves remain attached to the parent on stalks producing a branched structure.

Most flowering plants growing in water, produce their flowers above the surface. These are pollinated either by wind or by insects. An exception to this is Water Starwort. The emergent spikes of Broad-leaved Pondweed and Amphibious Bistort have already been mentioned. The very small flowers of Canadian Pondweed are not commonly seen. The flowers of Potamogeton are pollinated by wind, those of Bistort by insects. It is thought that in the

Starwort, with its under-water flowers, pollen may pass from the male flower to the female flower through the water. Many of the water plants have floating seeds which are dispersed by water.

In water plants reproduction by vegetative methods is commoner than by the setting of seeds, usually taking place by the fragmentation of a growing branch which roots itself on the bottom away from the parent plant, or by budding as already mentioned in the case of Duckweed. At the beginning of the winter the aquatic plants, as well as the waterside plants to be mentioned later, die down to roots or storage organs, or, as in Canadian Pondweed, form buds tightly packed with food which sink to the bottom ready to burst forth when favourable conditions return in the spring. Only Starwort retains its green colour throughout the year and can sometimes be seen in the winter low down in the water. The parts of the canal which run through wooded areas become full of dead leaves towards the end of the year.

Swamp and marsh zone

Bordering the open water zone, except where the towpath is stone-faced, a swamp zone of shallow water merges nearer the bank into a marsh zone of waterlogged soil. These zones have developed as a result of silting and the accumulation of dead plant material. In most places they are limited in extent, but the area they cover in any particular place varies with the time which has elapsed since dredging took place.

The plant which dominates the edge of the swamp zone nearest the open water is the Reed Sweet-grass (*Glyceria maxima*) recognised by its very stout upright, typically grass-shaped leaves with very acute tips. The leaves are sometimes folded down the centre. It produces very strong rhizomes or underground stems by which it can spread rapidly. For much of the canal, it forms a fringe near the bank, but in places it has spread towards the canal centre.

Two other plants growing in the shallow water of the swamp zone are Water Horsetail (*Equisetum fluviatile*), a primitive plant very distinctive with its jointed stems, and Water Plantain (*Alisma plantago-aquatica*) with its submerged band-shaped leaves, upright oval leaves and, in July and August, upright branched inflorescence of pale lilac flowers. Water Horsetail plants are found in quite large patches in many parts, while Water Plantain, although not uncommon in many wet places today, has only a limited distribution on the canal. It grows in small clumps between Ratho village and the Almond aqueduct and near Wester Hailes bridge.

At various places in the swamp zone are clumps of Unbranched Bur-reed (*Sparganium emersum*) with its globose heads of male flowers separate from the female flowers. It is well represented near Edinburgh in the Meggetland area. Its erect leaves are triangular in section, while its floating leaves, which often break away from the main plant, are very thin and slightly grooved.

Two plants of tall stature and upright growth, which line the canal bank for long stretches, are Meadow Sweet (*Filipendula ulmaria*) bearing from the end of May onwards, fragrant cream-coloured flowers, and Great Willowherb (*Epilobium hirsutum*) showing in late summer, deep purplish rose flowers.

Another tall plant well represented on the sides of the canal between Falkirk and Winchburgh is Tufted Loosestrife (*Naumburgia thyrsiflora*), a rather uncommon member of the Primrose family. It seems to have disappeared from parts of the canal nearer Edinburgh.

Several other marsh plants are plentiful in patches at the side of the canal and at some places is to be seen Monkey Flower (*Mimulus guttatus*), first introduced into Britain in 1820, also Gipsywort (*Lycopus europaeus*), a less common plant in Scotland.

Canal bank and verges of the towpath

The flora of the bank and verges is very colourful and varied. The bank and verges on the canal side of the towpath are composed, for much of their length, of semi-natural grassland supporting five or six species of grasses, including Yellow Oat Grass (*Trisetum flavescens*), which is an indicator of undisturbed land. The average piece of pasture land contains only two or three species. Growing among the grasses are many meadow plants such as Common Vetch (*Vicia sativa*), Tufted Vetch (*Vicia cracca*), both with some of their leaflets converted into tendrils, which help the plants to scramble up the grasses towards the light, three species of Clover (*Trifolium* spp) and Meadow Buttercup (*Ranunculus acris*), as well as some plants more typical of the marsh zone. There are many lovely patches of Ox-eye Daisy (*Leucanthemum vulgare*). Common Spotted Orchid (*Dactylorhiza fuchsii*) occurs here and there between Ratho village and Falkirk. Another Orchid found occasionally on the wettest part of the bank is the Northern Marsh Orchid (*Dactylorhiza purpurella*).

On the landward side the towpath verge varies with the type of habitat bordering the canal at any particular part. It is similar to that on the canal side, when the canal passes through meadow or open ground. Where there is a hedge, hedge plants flourish. These include Jack-by-the-Hedge or Garlic Mustard (*Alliaria petiolata*), Cow Parsley (*Anthriscus sylvestris*), Herb Robert (*Geranium robertianum*), Cleavers (*Galium aparine*), and several species of grasses. *Juncus tenuis*, until recently an uncommon Rush of wayside and woodland tracts, grows freely on part of the towpath itself.

In many places, mostly between Winchburgh and Falkirk, the towpath is shaded by bordering woodland, and here some typical woodland species, including Enchanter's Nightshade (*Circaeaa lutetiana*), Pignut (*Conopodium major*), Rosebay Willowherb (*Epilobium angustifolium*) are found growing amongst the woodland grasses. A patch of Astrantia (*Astrantia major*), a rather uncommon plant of wood edges, is found in the Falkirk to Linlithgow section.

Ferns are well represented both at the wood edge and at the hedge base where Lady Fern (*Athyrium filix-femina*), Broad Buckler Fern (*Dryopteris dilatata*), Male Fern (*D. filix-mas*), Bracken (*Pteridium aquilinum*) and occasionally Hart's Tongue Fern (*Phyllitis scolopendrium*) are to be found. Wood Horsetail (*Equisetum sylvaticum*) distinguished from the Water Horsetail by branches which droop at the ends, also grows here.

Where the vegetation has not been kept down through usage or by systematic cutting, the towpath has become invaded by shrubs, such as Hawthorn (*Crataegus monogyna*), Dog Rose (*Rosa canina*), Bramble (*Rubus* spp) and many tree saplings from the surrounding woodland or hedge. In places the towpath has had to be cut through the scrub vegetation which has spread over to the canal bank.

Walls and bridges

Another habitat is that of walls which face the canal, especially where it passes through built up areas, fence posts and stone bridges. Here a few flowering plants have managed to find rootholds in the crevices. The only one, however, that has adapted to such a situation is Ivy-leaved Toadflax (*Cymbalaria muralis*), whose flower stalks bend towards the cracks in the wall as the fruit ripens. When the fruit bursts the seeds become lodged in the cracks.

A number of primitive plants, made up of a few ferns and liverworts, and many mosses and lichens, can be seen growing in these situations. One of the ferns to be found is Brittle Bladder Fern (*Cystopteris fragilis*), which must have spread from its native rocky haunts.

In plant communities left to themselves, succession or gradual development, takes place to the climax community, the plant community which is in equilibrium with the soil and climate of the locality. Dredging and cutting, has halted much of this succession in most of the canal area, thus preventing the open water zone changing, in the first place, into swamp and marsh zones, and the grass verges into scrub and woodland.

The canal in conjunction with its towpath, offers a wide variety of habitats. It is good that this variation has been, and is being preserved. Ideal management for botanists should provide an environment for marsh plants, by allowing some, though not excessive silting, particularly at the old passing places, where succession may be studied, and should also ensure that scrub is not allowed to invade the towpath, and the verge or canal side.

References

Charman, McIntyre, Whilde. 1969. *Edinburgh and Glasgow Union Canal Survey*.
Department of Forestry and Natural Resources, University of Edinburgh.

Beattie, E.P. *Plant List S.W.T.*

Bell, P. and others. *Plant List E.N.H.S.*

J. Raeburn

SOME NOTES ON NATURAL HISTORY

Migration Notes from Aberlady

Members bird watching at Aberlady on 10.7.75 witnessed an interesting diurnal movement of Swifts and the Reserve Warden, Russell Nisbet, stated that he had counted 108 birds within 20 minutes passing along the dunes on the same day.

Russell also later confirmed that on 28.7.75 over 400 Swifts were seen flying over the dunes feeding on flying ants and that a similar situation occurred a few days later on 3.8.75 when over 500 were counted.

Yet high though these figures are they fall well short of the previous year's spectacular peak when Russell estimated that 1,200 Swifts passed through on 8.7.74 with 800 to 900 of these birds passing between 20.30 and 21.00 hours.

To Russell Nisbet, however, even more outstanding than the Swift numbers was the Meadow Pipit movement which took place on 19.5.75. His maximum hourly figure was 952 birds between 06.10 and 07.10 hours at Gullane Point with 937 birds being recorded during another hour. In fact the movement continued all day but was most pronounced in the early morning.

C.A. Pountain

A Wintering Blackcap in Edinburgh

The Blackcap is a regular summer visitor to the British Isles and every spring we are glad to pick out its song amongst the far more numerous Willow Warblers in, say, Newbattle Woods. Like many other warblers, it winters in the Southern Mediterranean and in Africa and comes north to Europe

and Scandinavia to breed, but unlike other warblers, a few overwinter in the British Isles, mainly in Southern England.

I was startled to see on our bird-table one morning in mid-March an unmistakable female Blackcap, and to realise that this was the bird which I had casually noticed during the previous few weeks, and dismissed as a rather odd-coloured Dunnock. This is not a rural area, but an ordinary Edinburgh terrace about 100 yards from the main Glasgow road, although the gardens include mature trees and shrubs and provide a green shelter-belt to the woods of Corstorphine Hill. Despite the presence of dogs, cats, neighbours' children, flapping washing, and gardening, the bird became increasingly 'tame', coming regularly to the five foot high roofed bird-table a few feet from the house. She had apparently joined amicably the resident population of sparrows, tits, finches, blackbirds, etc and though on two occasions I saw her successfully display aggression to a Dunnock who wished to share the bird-table, lunging forward with open beak and high outspread wings, she usually gave way to starling or blackbird. She was observed only occasionally on the bare concrete in front of the door, and only in company with other feeding birds; she sometimes foraged among dead leaves in the flowerbeds, but most often moved amongst lilac, forsythia and rhododendron, staying up to 30 minutes in a favourite perch.

Bird books quote the normal Blackcap diet as insects, fruit and berries but this bird's tastes were much more catholic. Every day in winter I make up a 'pudding' of left-over porridge, breadcrumbs, a few currants and wild-bird-food, and it was on this that I first saw her feeding and it apparently remained her favourite. But she also fed, very like a tit, spread-eagled on hanging pieces of pork-crackling, clung to the struts to search under the roof of the bird-table for insects, and shared in the usual distribution of brown bread crumbs, bird seed, cheese and fat. She also drank from the shallow bird-bath.

I never found where the Blackcap roosted, as she did not come to the garden in the late afternoon, but early in the morning she would be waiting for her breakfast. On 19th April she was there about 7 a.m. and feasted as usual at 8.30. I left the house soon after that, and later that day, and the next, we looked for her in vain. We hoped that she rejoined others of her species on their spring migration northwards, and this winter I shall watch my bird-table with particular interest just in case she again makes the unlikely choice of an Edinburgh garden instead of the Mediterranean.

M.R. Watson

Little Auk on the Shores of the Forth

During an informal Saturday outing through Dalmeny Park on 15.3.75 I found a dead Little Auk (*Plautus alle*) near the shore line. It was in a fresh condition and on the following Monday it was taken to the Royal Scottish Museum. I received a letter of thanks from the Curator of Birds, Mr. I.H.J. Lyster, an extract from which is given below:

"Our taxidermists are going to try to 'freeze-dry' the Little Auk, rather than stuff it, because the head is a bit bloody and the feathers may fall out if we try to skin it. Providing all goes well we will add it to our 'reserve collection', i.e. mounted birds which we can lend to schools, exhibitions, etc or present to other museums either here or abroad.

Freshly dead birds are always needed, even the very commonest kinds, so if you find any more do please let us know."

Colin Bell

Mole Catching

One Saturday with the E.N.H.S. on an insect outing to Gosford, I heard something rustling by the path. I picked it up and found out that it was a mole. He was quite a determined little fellow, so I let him go.

When I told my dad he did not believe me so I went off to get another little mole. This time, prepared for the little rascal, I succeeded in holding him and I had a jar to put him in. I showed the mole to the members and, of course, to my dad.

When I let the mole free, he burrowed quite far under the sandy earth.

Colin Bell

Kingfishers at Cramond

On a clear sunny morning, the 1st September, my daughter and I were just starting on a walk up the Almond from its mouth when we saw a Kingfisher fly downstream and out into the Forth where we lost sight of it over the Dalmeny sands. About a minute later, while we were still standing near the ferry, a second Kingfisher flew downstream and vanished like the first out into the estuary. We continued along the Riverside Walk and about ten minutes later while we were still below the weir, we again saw a Kingfisher, this time flying upstream. The remainder of the Walk offers only intermittent views of the Almond and we failed to catch another glimpse of the unmistakable blue flash of these attractive birds, whose numbers seem to be increasing over recent years.

M.R. Watson

Warblers in the Edinburgh Area

In 1975 warblers were heard and seen singing as follows:

14.6.75	Blackcap	Riccarton
14.6.75	Blackcap	Calder Wood
15.6.75	Blackcap	Threipmuir (west end)
22.5.75	Blackcap	Corstorphine Hill
25.5.75	Wood Warbler	Corstorphine Hill
25.5.75	Whitethroat	Corstorphine Hill

C.P. Rawcliffe

Great Skua off St. Kilda

One of the delights of a National Trust cruise is the chance one might see some natural history feature of more than usual interest. One such on the 1975 cruise was witnessed by hundreds on S.S. Uganda when, off St. Kilda, a Great Skua was observed in the process of drowning a gull - a not uncommon sight where Great Skuas are active. It does this by standing on the gull's back so that the weight of the Skua pushes the gull below the surface. The aggressor maintains its balance and its control over its victim by movement of its wings. The Great Skua is a predator and in addition to its webbed feet possesses also quite formidable claws. It is thus able to grip the gull securely to prevent any possibility of its prey escaping.

H.S. Hughes

Field Meetings

Three unscheduled meetings spring to mind in reviewing the summer of 1975. The first took place in early June on a footpath near Nether Lennie Farm, Turnhouse. I saw a movement ahead and stopped. A Stoat was running towards me and its black-tipped tail could be seen quite clearly for once. When it sensed my presence it jumped off the path. Meanwhile the Rabbit, which the Stoat presumably was pursuing, took advantage of the distraction to escape.

Two months later in the Humbie area I was climbing over a wall when I realised there was a hole in the ash tree growing close to the wall. Having been encouraged by experts always to check such habitats I took a quick look in the hole. When two large eyes returned my gaze I left the wall quickly! After a short time a Barn Owl flew out and perched high in another tree. It was a glorious day and the very pale plumage was highlighted in the bright sunlight.

Later that day, at the side of the road at the hamlet of Upper Keith, a Roe Deer was feeding. It did not seem to be disturbed by traffic but occasionally moved farther back from the road when a car came too close. Perhaps it is a regular visitor to that spot, especially if, in the winter, someone leaves out food.

J.H.W. Young

Wintering Ladybirds

On 7th December wintering assemblies of 11-spot Ladybirds were still in evidence at Tynningham, East Lothian. First noticed on 5th October by John and Lance Vick they were on fence posts near the coast. They were crowded together behind loose bark, in cracks and crevices on the wooden posts and in the angle formed between a supporting strut and a gate-post.

The number of Ladybirds seen does not appear to have been diminishing, each aggregate numbering from about 20 individuals to upwards of 50 or so. During each of our fortnightly visits since October there have been a few individuals moving about on the fence posts.

This species of Ladybird has a coastal distribution.

E.M. Smith

Shieldbug

Whilst picnicking in Craigie Wood, West Lothian, on 8.10.75, a Shieldbug alighted on me. This I detained temporarily and examined under a glass. It was about 14 mm long and generally of a green and grey appearance. The wing tips were membranous: this showed quite plainly where the wings extended beyond the abdomen.

Though unable positively to identify the insect from 'A Field Guide to the Insects of Britain and North Europe', I was interested to read therein that the dominant family, the Pentatomidae, is near the end of its range in Britain and that 'it seems that hot summers are necessary for their wellbeing'.

C.P. Rawcliffe

Pipistrelle Swimming

At about 14.30 hours on 7th December 1975 we were watching a Sparrow Hawk gliding over the wood at the mouth of the River Tyne at Tynningham Estuary. We suddenly became aware of a Pipistrelle fluttering over the river and it came down as though to drink or take an insect off the water. The next moment it was floating on the water with its wings folded and it started to paddle furiously towards the opposite bank looking exactly like a small rodent as it swam. It pulled out on the bank, lay motionless for about half a minute then lifted a wing and was immediately airborne, flying off to vanish in the wood.

R.W.J. Smith

Ray's Bream in the Forth

On the 6th December I found a specimen of the fish Ray's Bream (*Brama brama*) washed up on the Black Rocks at Gullane. It was about 50 cm long, with a vertically flattened body, large eyes and mouth and a deeply forked tail. Although the fish had been dead for some time most of the scales on one side were intact, the general body colour being dull grey. Since then I have found out that specimens have also been seen in 1975 at Cramond and at Cockenzie.

Although the biology of this fish is unknown it appears to migrate north and east from the deep southern Atlantic in summer. Any stragglers which get left behind as winter approaches, die and get washed up - they are a regular autumn feature on the Angus coast.

A. Sommerville

Jackdaws about the Dean Bridge

Has anyone seen Jackdaws about the Dean Bridge lately? They used to breed there but none was seen on 4.6.75 nor on a later visit. Could it be that their nesting holes have been sealed off?

C.P. Rawcliffe

HOUSE MARTIN ENQUIRY

There has been only a poor response to this enquiry (see 1975 Journal, page 9). The organiser, C.P. Rawcliffe, asked for information on the presence of the House Martin (*Delichon urbica*) breeding within the City boundary. The following information is needed:

Site
Number of nests
Breeding success (if known)

This enquiry will continue; notes for 1975 (and for earlier years) will be welcomed.

OBSERVATIONS MADE BY MEMBERS DURING 1975

26.2.75 About 150 Bramblings were seen at Shiplaw, Eddleston. Short-eared Owls were seen displaying at Cloich in the same area. C.S.

23.4.75 A Rook was seen on a chimney pot with newly lighted (smoky) fire in the grate below. Its behaviour was similar to that of a Starling anting - wings half spread, feathers ruffled. The bird was leaning down the chimney into the smoke, head and body as far down as possible, and fluttering its wings and feathers in the smoke. This bobbing movement was repeated several times in about 30 seconds. R.J.H.

6.5.75 One clump of Purple Toothwort (*Lathraea clandestina*) was found in a wood at Carberry, Midlothian E.H.

→ Purple Toothwort is parasitic on the roots of Poplar and Willow. It is an uncommon naturalised plant in Britain. It is not mentioned in the Field Club Flora of the Lothians 1934. J.R.

26.4.75 On the Crichton Dean outing a male Whinchat was seen on the old railway embankment. This sighting was earlier than in previous years. E.H.

Also seen on the same outing were seedheads of Wild Lentil (*Astragalus cicer*) near Gore Water Bridge. The cutting of the verge to allow seeding of Wild Lentil to take place had been delayed through the co-operation of the county road authorities and the S.W.T. The seed of this plant had probably come into the country in grain brought to the mill years ago. E.H.

May '75 Moonwort (*Botrychium lunaria*), a rather uncommon fern of dry grassland and rocky ledges, was seen on the hillside west of Loch Skene. P.B.

→ Moonwort is between two and six inches high. It has a leaf divided into moon-shaped leaflets and a fertile flower-like spike bearing a collection of yellow spore cases. J.R.

4.6.75 Twenty-one species of birds were seen on the evening outing from Dean Village to Canonmills. Members and their friends expressed astonishment at the variety of species that could be seen in the near-centre of the City. C.P.R.

15.6.75 A pair of Stonechat was seen feeding a juvenile near the east end of Threipmuir Reservoir. I.M. & C.P.R.

22.6.75 A cream coloured, almost white, Stoat, with no black tip to its tail was seen on the bank of Edgelaw Reservoir. The animal sat up in a typical way as it paused in running along the bank and across the road to the wood. E.H.

6.7.75 At 4 a.m. Glow-worms were seen at Cappercleuch, near St. Mary's Loch, Selkirkshire, on grassland beside the layby. S.G. per R.J.H.

→ Mr. A.J. Smith tells me that they are regularly seen at this point, the Hazel copse on the slope behind the grassland providing cover in winter. R.J.H.

9.7.75 In misty conditions on the Braid Hills we found a hen Stonechat. A month later, on 8.8.75 a pair was seen with at least two juveniles. Though there was no direct evidence to connect the sightings, yet it is reasonable to suggest that Stonechat (*Saxicola torquata*) bred successfully on the Braid Hills. I.M. & C.P.R.

19.7.75 Green Woodpeckers (*Picus viridis*) were almost common on Dumyat Hill between the lower slopes of the hill and Menstrie. At least five were counted and from the calls it is likely there were more. I.M. & C.P.R.

19.7.75 During the Airlie Glen excursion, a very great number of herbaceous plants were seen, including several - Herb Paris (*Paris quadrifolia*), Marjoram (*Origanum vulgare*), Stone Bramble (*Rubus saxatilis*) and Wild Basil (*Clinopodium vulgare*) - which are characteristic of a lime-rich soil. Although Herb Paris, with its four long narrow green sepals, its even narrower yellow green petals and later its black berry-like fruit, is found over most of Britain, it is very local in woods on dampish limy soil. H.S.F., P.B. & J.R.

July/August '74/'75 Hoary Plantain (*Plantago media*) was found at Gosford Bay. Although common in the south of England, this species of Plantain according to the floras, is rather rare in Scotland. P.B.

3.8.75 Over 20 Red Admiral Butterflies (*Vanessa atlanta*) were seen on Dundreich, Eddleston, Peeblesshire. C.S.

10.8.75 A Painted Lady Butterfly (*Vanessa cardui*) was seen at Tyninghame. E.M. & R.W.J.S.

13.8.75 At Aberlady Nature Reserve a Herring Gull was found, obviously suffering from botulism (see page 29). It lay, wings outstretched upon the sand, unable to rise - although it tried - and only able to shuffle forwards. I.M. & C.P.R.

17.8.75 An arrival of Red Admirals in the Moorfoots, Peeblesshire, was first evident when 16 were seen at Gladhouse and another eight elsewhere. This is by far the largest number seen in this area during weekly visits over the last 25 years. (But see observation dated 3.8.75 J.R.). They remained for several weeks the last being seen on 14th September. E.M. & R.W.J.S.

23.8.75 On the E.N.H.S. outing to the Pentland Hills Tops, a Dotterel (*Charadrius morinellus*) was seen on Turnhouse Hill. W.C.

→ George Carse wrote in the Evening News of 6.9.75 "When 20 members of E.N.H.S. - led by Bill Clunie - recently scaled various Pentland heights their exertions were rewarded with a sight of the rare Dotterel - normally associated with Highland mountain fastnesses. At one time it bred in the North of England on suitable moorland habitat, but for a long time it has been confined to a restricted area of the Highlands where the nesting site is a closely guarded secret.

→ "In Baxter and Rintoul's 'Vertebrate Fauna of the Forth' it is recorded that in May 1937 a single bird was seen on the Braid Hills by Ian Molteno, then a pupil at Loretto. So for the members of the E.N.H.S. to have seen even a single bird at close quarters high on the Pentlands made the occasion memorable."

→ I subsequently learned from the warden, Russell Nisbet, that a Dotterel had been seen at Aberlady Bay in May of this year. G.C.

25.8.75 A Great Spotted Woodpecker, known to some as the Pied Woodpecker (*Dendrocopos major*), never plentiful in the Lothians, was seen near Crichton Church. I.M. & C.P.R.

Late August Two bright green caterpillars, purchased in cauliflowers, pupated in captivity and emerged as Small White Butterflies 13-14 days later, to be released on 6th and 14th September. E.H.J.

19.9.75 At Fountainhall, on the old Waverley Line, there was a family of Green Woodpeckers (*Picus viridis*) - both parents and two fledged young - feeding on flying ants and ladybirds, both of which were available in quantity. They continued to feed in spite of five watchers, for about ten minutes. R.J.H.

27.9.75 Over 40 fungi were found by members in Milngavie Woods, a place specially good for fungi, and identified by the leader of the excursion, Mr. D. Hunter of the Andersonian Society, Glasgow. Readers who would like to see the list of species found should apply to the Records Secretary. A.R.

11.10.75 A patch of 17 Stinkhorns (*Phallus impudicus*) was found on the mixed edge of Humbie Woods; more than 70 Panther Caps (*Amanita excelsa*) were seen in the Sitka Spruce plantation in Humbie Woods on the same day. This autumn has been particularly good for many fungi species. R.J.H.

17.10.75 Small Tortoiseshell Butterfly (*Aglis urticeae*) was seen in garden at Eskbank. E.H.

18.10.75 Several Painted Lady Butterflies were seen at Meg's Camp, Mayfield, Dalkeith, feeding on late Bramble and Hawkweed flowers R.J.H.

15.10.75 A spotted Redshank was seen in Peffer Burn, Aberlady. C.S.

10.10.75 Passing Woodhall Grain Mill we were suddenly in the midst of a large flock of panic-stricken sparrows closely followed by a Sparrow Hawk. The small birds won the race for cover and after the Sparrow Hawk had flown away, they very quickly returned to feeding on the ground near the grain mill.

B. & C.W.

31.10.75 A Long-eared Owl was sighted throughout one night aboard an oil rig, 100 miles east of Dundee. (Flocks of Starlings are on the rig all the time.)

H.M.M.

9.11.75 Kingfishers, Waxwings and Red Squirrel were sighted at Abbey St. Bathans, Berwickshire. C.S.

CORRESPONDENCE

A letter from Arthur J. Smith to the Editor concerning
Yellow Mountain Saxifrage (*Saxifraga aizoides*) in the Moffat Hills

3rd July 1975

Dear Madam

Grey Mare's Tail Excursion 1973

In the report by Messrs. Bell and Winham, I read with surprise that *Saxifraga aizoides* had been seen in a damp flush by the path to Loch Skene, since I have never seen it there myself. Nor does Derek Ratcliffe list it in his excellent paper on 'The Mountain Plants of the Moffat Hills'. It is indeed surprising that it and *Alchemilla alpina* are absent from the Southern Uplands when both are present in the Lake District and the Highlands. Knowing the ability of the authors of the report, I had a search this year and was again unable to locate *aizoides*, and would therefore respectfully ask them to check again for its finding would be a new record for the area.

Yours faithfully

Arthur J. Smith

A note from Rosemary Harper

Further to the letter from Mr. A.J. Smith the following note may be of interest. On 16th July 1975 Mr. Smith and I re-visited the Grey Mare's Tail and searched diligently for the plant in question. It could not be found, but a photograph taken at the time of the first siting was produced, and was positively identified as *Saxifraga aizoides*. The photograph shows the plant in full flower, and also the small size of the specimen. As it was close beside a well used path up to Loch Skene, it seems probable that human erosion has destroyed the site.

R.J.H.

WINTER INDOOR MEETINGS 1975

The speaker at the January meeting was Superintendent A.J.M. Smith of Tulliallan Police College and his subject "*Following the Terns*". In a very interesting and entertaining address, illustrated by magnificent colour slides, Mr. Smith told of how he had tracked some of the birds he had watched and ringed at their breeding grounds in Aberdeenshire to their winter quarters off the coasts of Africa. Starting with some evocative slides of the Ythan estuary and the Sands of Forvie, and fine slides, too, of the individual birds and their nesting sites, Mr. Smith spoke of the breeding habits of various species of Tern which are to be found there from the end of March until the month of September. Terns are very specialised feeders, living mostly on shoaling fish which they catch near the surface in shallow water. In late July shoals of sprats come in to the Ythan estuary and large numbers of Terns come from all over Britain to feed on them.

The birds migrate by night about mid-September coming down at various places along the coast en route, and the feeding of the young birds seems to go on until the birds reach the African wintering grounds. The Roseate Tern stops at the Tropics, the Sandwich and Common Terns go on to the Cape and the Arctic Tern goes south to the Antarctic. On his voyage out to Sierra Leone, Mr. Smith saw Kittiwakes and Gannets feeding, unusually, on ship's waste. On landing at Freetown he visited various sites including a lagoon where he found birds he had ringed in Scotland. The Terns were for the most part feeding on fish debris flung out by the native fishers, and it was in this way they were often trapped to be used for food as an alternative to a fish diet. At another site he discovered groups of Forvie and Farne Island-ringed Terns feeding naturally, along with many other familiar species such as Golden Plover, Dunlin and Curlew.

From Sierra Leone, Mr. Smith voyaged on to Accra in Ghana where again he found that fishing boats attracted the Terns and that many of the birds were caught by young child adapt. At a salt pans site he found that about 42 per cent of the Terns were ringed, 20 per cent of them at Forvie. Other birds seen included Egrets, Black-winged Stilts, Glossy Ibis and Pied Kingfisher.

At the February meeting the speaker was Mr. Dick Balharry of the Nature Conservancy and the title of his talk "*Conservation of Wildlife in the Scottish Highlands*". Mr. Balharry spoke generally, of the many problems attached to proper land use and the conservation of wild life. He, himself, believed that the Human was the most important animal, and it was sometimes difficult to reconcile conflicting interests, for instance Forestry and Red Deer; the Fishing Industry and Seal colonies such as that on North Rona; Crofters in South Uist and the wild Geese that wintered there and ate the grass and crops; the countryside generally and the people who wanted to use and to enjoy it. He spoke in particular about an animal of which he had made a special study - the Pine Marten. Living a nocturnal life and confined to the Western Highlands, this delightful animal, about the size of a cat, was not an arboreal creature as its name suggested, though it often used tree tops as look-out posts, hunted for food amongst trees and went to ground in old tree roots. Trees were not necessary to it and it often had its den on a bare hillside. Its food consisted of mountain hare, grouse, voles, young birds, earthworms and even jam! It was most often seen by Man at dawn or dusk, and could sometimes be surprised scavenging at roadside rubbish bins.

Mr. Balharry went on to speak at some length about Red Deer - the various stages in its development, its impact on the Highlands and its importance as a food resource. Throughout his address he illustrated the various points raised with amusing anecdotes and magnificent colour slides.

"The Shores of the Forth" was the title of the March lecture at which the speaker was Mr. Ralph Blain of the National Trust for Scotland. Mr. Blain said he had chosen to speak about Fife and the Lothians, and in describing the background of these areas, to underline the matters of concern in their future use by Man. Fife had contributed much to the history of Scotland. By the 10th Century it had an important part in Scottish affairs which continued until after the Reformation. The weaving and other trades had been introduced into burghs along the shores of Fife by artisans from the south in the reign of David I and there was much maritime trading to the continent and inter-marriage with men from other countries and cultures. This developed ahead of land communication. Agriculture had been the predominant activity for centuries. Good loam on the eastern parts led to good farming, contrasting with the coal-mining areas to the west and south. There were hardly any natural tracts left in Fife, land for the most part being controlled by human activity in the production of food and fuel. Woodland cover had been drastically changed over the centuries though private estates had replaced some of these woodland areas. Foxes, rabbits, hares, weasels, stoats and badgers occurred in comparatively small numbers and there was still a fairly wide variety of habitat with shoreline, estuarine and cliff flora which were staging posts for migrant birds.

East Lothian showed much the same history of stagnation and advance. Populated since primitive times (e.g. Traprain near East Linton) it had been ravaged by various invaders from the sea and the border marches and, until the latter part of the 18th Century was predominantly bare and ill-drained. Then, tree planting by landlords altered the landscape and the conditions of the people and developments such as coalmining and the establishment of distilleries, breweries and salt pans. There were two distinct forms of landscape. One was the Lammermuirs, which were mainly the home of sheep and, two, the lowlands of the north and east where Man's work was everywhere. Particularly important areas for wildlife were Aberlady Bay for waders and wildfowl and from Longniddry to the Tyne for flora, plus, of course, the gannetry on the Bass Rock. This, then, was the background to the environment in which the large city of Edinburgh had grown up. There was still much of the shores of the Forth unspoiled, but the pressures were becoming more intense, both industrial and recreational, and the natural history of the area was being threatened as never before. People must be made to realise that what was being done by way of conservation was being done on their behalf.

The meeting in April was, as usual, given over to Member's Night. First of all, Mrs. Watson asked if members who frequented Corstorphine Hill would co-operate in the continuing survey of birds there by taking check-lists of birds already seen in the area and returning them to her at the end of the season. She described the sighting in her garden of a female Blackcap (see page 11). Miss R. Harper showed slides of various fungi found in the Lake District and the Scottish Highlands, also a slide of a Natterjack Toad. Then followed some taken by Mrs. Watson on various excursions, also slides of the flora and fauna of Glen Feshie by Miss Raeburn. Mr. John Baines showed some very fine slides of the rock formation of St. Kilda, views of Fair Isle and the fiords of Norway taken on a National Trust for Scotland cruise. After an interval for coffee the second half of the programme was taken up by Mr. Alistair McLeod's account of his recent trip to Argentine, Patagonia and Tierra del Fuego. He had many fascinating photographs of the many and varied aspects of life in these countries.

Following upon the A.G.M. in October, one of our own members, Mr. Arthur J. Smith, spoke of his recent visit to the game reserves in Africa, the title of his talk being "Safari to Africa". Mr. Smith said his had been a "package-tour safari". The party had stayed in comfortable hotels and had been ably led throughout the tour. He had armed himself with two books 'The Birds of

'East and Central Africa' and 'National Parks of East Africa', as well as with what must have been a very good camera judging by the excellent "shots" he had obtained of a large variety of mammals and birds in their natural habitats. Even in the wide spaces of Africa conditions were changing, causing wide migrations of such animals as Wildebeest and Zebra. Man was encroaching and the animals themselves destroyed their habitat so that reserves had to be managed.

The speaker at the November meeting was Mr. Paul Read of Napier College, Edinburgh, and his subject "*Some Effects of Sewage Pollution on the Flora and Fauna of the Firth of Forth*". Mr. Read explained how Edinburgh Corporation, having commissioned a new sewage scheme, had in 1972 offered Napier College the opportunity to study, for a period of three years before and three years after the scheme becomes operative in 1976, the flora and fauna of the regions that would be affected. The work was being carried out by a team of specialists of whom he was only one. At present sewage was discharged through six outfalls at Cramond, Granton, Seafield, Prestonpans and Seton Sands. The new scheme was for eight tanks at Seafield. The effluent would then be discharged from a two mile long outfall, and the solid matter carried to the mouth of the estuary by ship where it would be discharged. Mr. Read was concerned with the outer section of the Firth below the railway bridge, which was not much polluted. Some inshore areas, however, are grossly polluted and it was here, where the greatest changes would be expected, from Cramond to Ferry Ness, that they concentrated their studies. It has been found that there was a high concentration of phosphates at Seafield due to the discharge from a fertiliser factory, and of nutrients from the Almond and the Esk. At Granton the sandstone outcrop supported a large population of barnacles and winkles, as at Ferry Ness, but also a species of suspension-feeding worm covering large areas of outcrop, and also extensive mussel-beds partially buried in mud and sand.

The Forth area was a very good area for ducks and waders. Ninety per cent of diving ducks were to be found in the area between Leith Docks and Port Seton, i.e. a highly polluted area. Golden-eye fed directly on the outfall, particularly on the barley seeds from the breweries; Tufted Duck used vegetable matter, Pochard, a freshwater duck, generally flighted down from Duddingston Loch to feed at night on vegetable matter, and Scaup were the most numerous in winter, in fact this was the principal area for them in the whole British Isles. These birds were predominantly mollusc feeders. Regarding waders, the inner parts of the estuary were more important but study had been carried out of numbers and feeding habits of Oystercatchers at Joppa and of Bar-tailed Godwits at Seafield attracted there, probably by the high density population of worms. In closing, Mr. Read said that the Forth was not grossly polluted, comparatively speaking. Because of the absence of big industrial complexes, there was very little toxic pollution.

At the December meeting we welcomed back to the Society Dr. Roy Watling of the Royal Botanic Gardens in Edinburgh and the title of his lecture was "*Botanising under the Southern Cross*". Dr. Watling said that he had gone out to Australia in 1973 at the invitation of the British Council. When he discovered that the Natural Sciences were orientated to the practical side of producing trees and creating the conditions for agriculture, and that there was no tradition of studying native flora and fauna, he decided to make forays into the hinterlands from various centres to study the ecological patterns and to assess how important in the world Australian fungi were. Australian vegetation is very close to that of South America and South Africa. The climate varies from the oceanic, through the temperate to the tropical forest zones. Here were found hundreds of undescribed plants and animals and a wealth of fungi. It was important that all this should be investigated now

before further exploitation of land. Dr. Watling went on to describe numerous types of fungi to be found in the different zones - fungi which spread up the trunks of trees; luminous fungi which at night lit up the insects around; many bizarre and highly coloured fungi, some growing to high size in a very short time. He also showed slides of some of the birds native to Australia. This talk was illustrated with a selection of interesting colour slides.

N.F. Henderson

FIELD WORK AND EXCURSIONS - OUTDOOR ACTIVITIES

LOTHIANS POND SURVEY - Organised by the Lothians Branch of the Scottish Wildlife Trust, this survey is now in its final year. The aim is to locate ponds and breeding sites of frogs, toads and newts during the months of February to June each year.

Organiser - Mrs. E. Hamilton, Woodridge, Ancrum Road, Dalkeith.

UNION CANAL SURVEY - Samples from the Canal are examined for their invertebrate fauna content. Although the use of a microscope is required for much of the identification, lack of previous knowledge and of the ability to use a microscope need not deter helpers.

Organiser - Mrs. E.M. Smith, 33 Hunter Terrace, Loanhead.

FORTH ISLANDS BREEDING BIRDS SURVEY - This survey has been running since 1959 and covers five of the inner Forth Islands. The results are published annually in this Journal.

Organiser - R.W.J. Smith, 33 Hunter Terrace, Loanhead.

CORSTORPHINE HILL SURVEY - This survey is expected to continue for several years. A bird report is published annually in this Journal. Currently, the small mammals are being studied through live trapping and owl pellet analysis. Much work remains to be done on the badger population.

Organiser - Mrs. E. Farquharson, 6 Chamberlain Road, Edinburgh.

LOTHIAN BADGER SURVEY - This is part of a National Survey organised by the Mammal Society. Volunteers willing to cover a limited area of countryside are needed.

Organiser - Mrs. E. Farquharson, 6 Chamberlain Road, Edinburgh.

HABITAT SURVEY - The Lothian Branch of the Scottish Wildlife Trust is carrying out a detailed survey of the Lothians. Whenever possible, outings are fortnightly, when a small area of country is studied in detail and recorded.

Organiser - J. Ballantyne, 6 Mansfield Place, Edinburgh.

HOUSE MARTIN SURVEY - see page 15.

Organiser - C.P. Rawcliffe, 35 Comely Bank Road, Edinburgh.

Help with surveys

Anyone interested in taking part in any of the surveys above will be most welcome. Help is needed throughout the year. Please apply to Mrs. M. Watson, 8 Ormidale Terrace, Edinburgh, or to individual organisers.

EXCURSIONS 1975

The excursions and outings, which were organised for members and their friends by the Excursion Committee, are shown on the list below. With few exceptions they were very well attended.

The Committee will be very pleased to receive from members suggestions for future excursions (see front cover for names and addresses of Excursion Committee members).

*Key for excursions: B - Botany, E - Entomology, f - fungi,
 Ff - Freshwater fauna, G - General, Ge - Geology, IBC - Island Bird Count,
 M - Mammals, Ml - Marine life, O - Ornithology, S - Shore*

On Saturdays and at the Weekends		Leader
26 January	Lagoons - Musselburgh	O Miss A. Reddin
23 February	Hedderwick Hill	O Mrs. E. Hamilton
22 March	Loch Leven	O Mr. C. Pountain
26 April	Crichton Dean	G Mr. H. Hughes
3 May	Port Seton	S Miss R.J. Harper
10 May	Bowden Glen to Dryburgh	G Mr. A.J. Smith
16-19 May	Grizedale Forest (Lake District)	M/G Mrs. E. Farquharson Miss N. Henderson
24 May	Eskdalemuir	G Mr. W.B. Walker
31 May	The Hirsell and Coldstream area	O Mr. C. Pountain
7 June	May Island by invitation of Largo Field Studies Society	O
8 June	Lamb and Fidra	IBC Mr. R.W.J. Smith
	East Lammermuir Deans, with Scottish Wildlife Trust	B Mr. J. Brownlie
14 June	Calder Wood	O/B Mr. J. Richardson
	Craigleith	IBC Mr. R.W.J. Smith
	Pressmennan	E Mr. E. Pelham-Clinton
21 June	Pressmennan	B/O Miss J. Raeburn
22 June	Inchkeith	IBC Mr. R.J.W. Smith
27-29 June	Ythan Estuary and Deeside	O/G Mr. W. Murray
5 July	Ben Lawers, with Andersonian Naturalists of Glasgow	B
12 July	Largo Bay, with Dundee Naturalists Society	B/S Miss R.J. Harper
19 July	Airlie Glen, with Perth Society of Natural Science	B
26 July	Torness Point	Ml Mr. J. Winham Mr. A. Lindley Dr. A. Sommerville
2 August	Gordon Moss	E Dr. A. Sommerville
9 August	Peebles Circuit	G Mr. & Mrs. C. Warren
16 August	Gullane to Yellow Craigs	G Mr. A. Mathieson
23 August	Pentland Hill Tops	G Mr. W. Clunie
30 August	Penicuik area	G Mr. J. Young
6 September	Blackness to Bo'ness	f/G Mr. J. Carlyle
13 September	Palacerigg Country Park	M Mr. D. Stephen
20 September	Aberlady	O Mrs. E. Smith
27 September	Milngavie Woods, with Andersonian Naturalists of Glasgow	
4 October	Bathgate Hills	G Mr. T. Anthony Mr. T. Richardson
24-26 October	Ythan Estuary	O/G Mr. W. Murray
8 November	The Hirsell	O/G Mr. C. Pountain

13 December	Lagoons - Musselburgh	O	Mr. C. Pountain
27 December	Treasure Hunt and Picnic		

Evening Excursions

23 April	Lagoons - Musselburgh	O	Mr. C. Pountain
14 May	Newbattle Woods	O	Mrs. E. Hamilton
21 May	Lagoons - Musselburgh	O	Mr. C. Pountain
28 May	Cramond to Queensferry	B	Mr. J. Carlyle
4 June	Dean Village to Canonmills	O/B	Mr. C.P. Rawcliffe
11 June	Canal Meggetland Bridge	Ff	Mrs. E. Smith
18 June	Inchmickery	IBC	Mr. R.W.J. Smith
20 June	Arthur's Seat, Whinney Hill with Edinburgh Geological Society	G	Dr. C.D. Waterston
25 June	Balerno to Dalmahoy	B/G	Royal Scottish Museum
2 July	Calton Hill and Regent Terrace Gardens	G	Miss J. Raeburn
9 July	Blackford and Braid Hills	G	Mr. G. Bell
3 September	Bilston Glen Colliery		Mr. G. Carse Colliery Manager

Informal Excursions - in addition, several informal excursions took place during the winter session.

REPORTS AND EXCERPTS FROM REPORTS

Mammal Trapping on Corstorphine Hill

After a slow start, the trapping programme is now under way. At first several evening, and one day long, meetings were held to get accustomed to setting traps. November saw the first full weekend trapping. During the winter months it is proposed to set the traps early Saturday morning, lifting them on Sunday evening, with inspections on Saturday evening and Sunday morning. In spring and summer, traps will be set on Friday evenings, which will give a full 48-hour period. The aim of the programme is to find out how small mammal populations estimated from trapping, compare with populations of the same species estimated from analysis of Tawny Owl pellets.

Traps are made in two parts, a nest box which is filled with clean, dry straw and the tunnel, which fits into the nest box and is secured by a flap and lever. Plenty of food suitable for both rodents (home-made Muesli - a mixture of cereal flakes, dried fruit and nuts) and insectivores (puppy meal) is put into the nest box. The tunnel has a trap door, which is dropped by a trigger mechanism as the mammal treads on a lever at the far nest box end of the tunnel. Care must be taken to ensure the bedding remains dry, as small mammals are very vulnerable to damp and quickly die of chills. Regular inspection avoids chilling, and even if the weather is dry, animals must not be left inside too long - they may have young ones at their nest needing food and warmth.

So far only male Woodmice (*Apodemus sylvaticus*) have been caught. This is partly because of the season - in winter male mice roam more and are not so territorial, and in any case male Woodmice are highly inquisitive and lazy, so a tunnel leading to a ready made warm nest is very attractive! Also Voles and Shrews are less active in winter, so less likely to be caught. As the year moves on, results should reflect changes in the behaviour of these animals. The first full year's results will appear in next year's Journal. The Carnegie United Kingdom Trust provided money for the Longworth Live Traps.

Birds of Corstorphine Hill

This is a continuation of the reports given in the 1973 Journal - see page 26 - and the 1974 Journal - see page 22.

1975 has brought a slight lengthening of the list of bird species seen on the Hill, the total now being 51, and of these only the Cuckoo and Great Spotted Woodpecker have not been reported this year. On the other hand, the Green Woodpecker has been noted several times and may well be breeding; the Kestrels have been seen with two flying young; and the summer visitors were well represented with Spotted Flycatchers, Whitethroats, Willow- and Wood-Warblers and probably Blackcap - there were no sightings of this last bird but on the basis of song heard at a distance it was entered as Blackcap/Garden-Warbler. A cock Hawfinch was seen in June, a shy though unmistakable bird which may well have been present on the Hill since 1965 when it was last recorded.

The opening-up of the south-facing flank of the Hill, previously private ground, between Beechmount Hospital and the Zoo Park boundary, has added a very attractive area of open grassland with gorse, shrubs and mixed woodland which will repay study throughout the year.

M.R. Watson

Report on the Union Canal Survey

The purpose of this survey is to identify, as far as possible, the various forms of pond life occurring in the canal. A previous survey of the Union Canal was that of A. Whilde which furnished the material for his thesis on 'Preliminary Data for a Fishery Management Plan for the Edinburgh Glasgow Union Canal'. Between January and April 1969 Whilde carried out systematic sampling at each of ten stations by means of bottom mud sampling with a mud grab, and electric fishing. Analysis of stomach contents of the fish caught gave information about the food organisms taken.

Regular fortnightly visits have been made to the Meggetland Bridge area of the canal. The submerged aquatic vegetation there is predominantly Canadian Pondweed (*Elodea canadensis*) and an alga - a species of *Cladophora*. The Canadian Pondweed grows anchored in the bottom mud, generally at a distance just out of reach with a pond-net. The branched alga, *Cladophora*, which resembles tufts of dark green hairs grows attached to the stone walls. Ivy-leaved Duckweed (*Lemna trisulca*) is also plentiful. It is free floating at varying levels but not at the surface and is often in quite thick mats. Broad-leaved Pondweed (*Potamogeton natans*) grows rooted in the bottom mud but its large oval leaves float on the surface. Common Duckweed (*L. minor*) is free-floating on the surface. During the summer, growth of this Duckweed is so prolific as to cover the entire surface of the water in regions not subjected to much disturbance. Small Unbranched Bur-reed (*Sparganium emersum* - formerly *S. simplex*) nearly chokes the canal. It is bottom rooted and from the submerged stem five foot long narrow grass-like limp leaves float up to and along the surface. During the summer its flowering shoot emerges from the water bearing sturdy aerial leaves and ball-like inflorescences.

On each visit general observations are made as to weather conditions, clarity of the water and the growth of pondweeds and algae. Surface dwelling creatures such as pond skaters may be caught with a pond-net. If the water is clear shoals of fish may be seen but they usually defy capture. Clear water also enables one to note the presence of sponges, pond snails, caddis larvae and swimming leeches. If identity is not

certain, specimens are obtained for further study. A butterfly net is used for catching flying insects disturbed from the towpath vegetation.

Amongst the algae are large numbers of Water Fleas, Cladocerans and Copepods. These creatures are just visible to the naked eye. A jam jar is scraped through a patch of this algal growth to sample them. These samples require much patient and painstaking work with a microscope for identification.

An ordinary nylon mesh pond-net is used to drag across the surface of the bottom and in to the side. This sample is put into a shallow dish of canal water and the operation repeated. The total catch from ten 'hauls' is then examined and sorted and the number of each apparent species of caddis larva, pond snail, leech, flat worm, etc counted. Results are by no means of statistical value but do tend to show changes in a very local population. A similar ten-sweep sample on the same day less than a mile away gave quite different results. Any specimens not required for further study are returned to the canal at the same point as they were obtained.

Sweeps with a pond-net are made through the aquatic vegetation and the catch examined. Pieces of pond weeds are taken home and left in jars of canal water to see what creatures may appear. So far efforts to rear caddis larvae to the adult stage for positive identification have been unsuccessful.

Visits on different days to the same area and occasional visits to other areas on the same day give quite different results. Several highlights remain vivid in our memories. At Harrison Bridge the Pond Sponge (*Euspongilla lacustris*) became very conspicuous with huge fingered colonies 18 inches or more in diameter attached to submerged stones. On another occasion while we were walking along the towpath near Linlithgow we saw 200 or more demoiselles flashing and glinting in the sunshine. Many of these slender-bodied dragonflies were flying in tandem and others were mating. A lucky dip amongst thick vegetation at Allan Park netted a Bullhead. The books describe this fish as an inhabitant of the trout becks or streams. It transpires, however, that this species occurs in considerable numbers in the Union Canal and also in the Gogar Burn; and that it has been common in both these waters for at least the last ten years. Another lucky dip at Ratho produced a newt tadpole. This occasion marked the debut of one of our new junior members who has offered to do some sampling there.

The West Lothian Rangers are going to co-operate with us and their findings on the River Almond, the main feeder for the canal, will be of considerable interest. Further regular sampling is to be carried out at Harrison Bridge. Volunteers who would like to assist in this survey would be most welcome. It is hoped that sampling can be carried out at several different stations on the canal.

A.W. Gillespie
E.M. Smith

Extracts from the Report on
Excursion to The Hirsel and Coldstream Area - 31st May 1975

On the Tweed we had an excellent view of three Whooper Swans, although bird books tell us, quite rightly, that Whooper Swans leave in April.

The day will be memorable because of the variety of nests seen. We saw the nesting boxes for Swifts installed below the top windows of the house; the tree nests of Collared Dove, Goldcrest, Dunnock, Bullfinch, Chaffinch, Goldfinch and Redpoll and contrasted these with nesting holes of Sand Martin,

Tree Creeper and Kingfisher. Ground nests were also observed - Mallard, Pheasant and possibly the most fascinating of all, Woodcock.

C. Pountain

Pond Survey 1975

The new Lothian Region has asked for lists of wildlife sites which the Scottish Wildlife Trust would wish to see taken into account when planning decisions are made. As well as other sites, the Lothian Branch has been able to give them a list of over forty ponds which are important amphibian breeding sites. This, we feel, is something positive done for conservation and something to show for the work put into this project over the last four years.

Some three hundred and sixty sites in the Lothians have so far been investigated; of these, over ninety, probably more, have been drained or filled in. On the face of it that leaves approximately two hundred and seventy potential homes for frogs, toads and newts. But some ponds are polluted or unsuitable as breeding sites in other ways; others may hold only small amounts of spawn one year and none the next - in other words there are not many amphibians in that particular area. Every unpolluted, weedy, permanent pond in the Lothians is of value for aquatic life. It is heartening to have the interest of the new Region and District Authorities in this and other wildlife matters.

Next year, 1976, will be the last year of the survey. We plan to make a final check on the water level of all sites, as well as again looking for amphibians. We hope you will continue your support so that we can bring this survey to a successful conclusion. With our thanks once more to all E.N.H.S. members who have helped this year.

E. Hamilton

Riccarton November 1974 - October 1975

Somewhat fewer visits were paid during this period than heretofore, yet despite the influx of students with its consequent increase in pressure upon the resident wildlife, items of interest continue to be noted.

On three visits Roe Deer were seen and in December 1974 we had our first view of a fox. Toads were found living in disused pits. In November a rabbit was seen showing all the characteristics of myxomatosis.

Little Grebe, Moorhen and Coot all nested at the pond, and in June a Heron was seen to land in the Murray Burn. A new bird was a Whinchat seen in May.

I. MacLean
C.P. Rawcliffe

Correction

May I be permitted to draw attention to an error of omission in my 1974 report 'News from Riccarton'. The words "(at least 2 broods), kestrel and whitethroat. A family of blackbird were found" should be inserted between "little grebe" and "just on the boundary".

C.P. Rawcliffe

Forth Island Bird Count 1975

	Craigleith	Lamb	Fidra	Inchkeith
Fulmar	45		70	396
Cormorant		225		
Shag	214	233	25	2
Greater Black Back	?			
Lesser Black Back	x	10	x	c250
Herring Gull	x	350	x	4,000
Kittiwake	350	93	262	404
Razorbill	49	12	4	c14
Guillemot	1,100 bds	500	20	(2 bds off-shore)
Puffin	1,100 bds		12 bds	610 bds

Fulmars - - occupied sites, not necessarily breeding

Craigleith Guillemots - birds on breeding cliffs

Puffins - all birds, on land and off-shore

All others - pairs or nests

x - present but not counted; c - about

During the last ten years there has been a steady decrease in the numbers of Roseate Terns breeding in the British Isles - their European stronghold. The major Scottish colony, which is also the biggest on the east coast of Britain, is on Inchmickery. As part of a national effort to help conserve the species, Inchmickery was closed to all visitors from this year. The ladders have been cut and landing generally made more difficult. This was primarily to deter the many casual visitors from pleasure boats who unwittingly caused a lot of damaging disturbance. As a consequence the Island Counts there have had to be discontinued. I am grateful to the RSPB for permission to quote their counts there for 1975. Sandwich Terns increased by about 200 pairs to some 650; Common Terns were similar at 750 pairs while Roseates had decreased to 61 pairs (52 and 78 were the official counts in 1973 and 1974 respectively).

There was another 'red tide' in May of this year on the Forth/Farnes sector of the North Sea. The pattern seems, from initial reports, to have followed that of 1968. Red tides are caused by an abnormally high rate of reproduction of dino-flagellates. In 1968 the species concerned was *Gonyaulax tamarensis* which produces a paralytic toxin. When the dino-flagellates are in super-abundance this paralytic shell-fish poison permeates the food chain and ultimately affects the seabirds. A red-tide is usually confined to inshore areas and mainly affects species in this narrow feeding strip. Shags were the most badly hit species both in 1968 and this year, with preliminary reports suggesting a 50 per cent 'kill' of breeding birds on the Farnes for 1975 (compared to 80 per cent in 1968). As in 1968 the Forth population suffered less, with a reduction of about 7 per cent (35 nests) on Craigleith, Lamb and Fidra combined. Assuming that these colonies might have increased by some 10 per cent from the 1974 counts this really represents a 'kill' of perhaps 15 per cent of the 1975 nesting birds. The Inner Forth Shags were little affected and the number breeding on Carr Craig has increased to 13 nests. Several Fulmars and Gannets were found dead at Tynningham in May - an unusual

occurrence at this time of year. They too had probably died of paralytic shell-fish poisoning. The red-tide had apparently subsided by the end of May but the level of toxin in the environment would take several months to fall to a safe level.

In early June Nature dealt another blow. During May there had been partial culls of Herring Gulls on Fidra and the Isle of May; and a complete cull on Inchmickery. The substances used are quick acting and non-persistent. So it was puzzling to find Herring Gulls dead and dying at the breeding colonies and on the East Lothian shore before and during our visits to the islands. Eventually this was shown to be due to an outbreak of Botulism - a form of food-poisoning caused by a bacillus. After a cold start the weather in June became very calm and warm and these ideal conditions permitted the bacilli to flourish and the disease to become widespread. The big gulls (mainly Herring but including some Lesser Black Back) were the main victims although a few Black-headed and Common Gulls were affected later. By the beginning of July some 1,500 dead Herring Gulls had been collected in the Forth and it seems possible that perhaps 2,000 may have died before the end of the summer. There was a Forth breeding population of probably at least 12,000 pairs at the time of the outbreak (plus several immature birds) so the 'kill', though significant, would make no real impact on the numbers of this expanding and aggressive species.

R.W.J. Smith

Island Bird Counts - Guillemot, Razorbill and Puffin

Our first pioneering visits to the smaller Forth Islands were in 1959. None of us had much previous experience of counting seabirds. The main task was to count the numbers of Kittiwakes (by counting nests) and Fulmar (again a straightforward count of occupied sites) as our contribution to the national ten-year censuses of these species, but we hoped to extend the counts to cover some of the other species.

The initial impact of the 100 foot east-facing cliff on Craigleith was daunting. Kittiwakes' nests were difficult enough to count from the boat as there seemed to be tier upon tier of occupied ledges. One really needs binoculars to be sure which white blotches are nests and which are merely white-washed knobs of rock; and a swaying deck does not give much stability for this sort of work.

But if the kittiwakes were a problem, what could one do about the auks? There were packed ledges of Guillemots on the cliffs, dozens of birds on the lower rocks, hundreds on the sea and a continual whirring of parties and individuals around the boat. Razorbills in much smaller numbers were standing on prominent outcrops or peering out from the niches behind. Puffins stood around the top of the cliffs in gay groups, massed in hundreds on the water at the sheltered side of the island, incubated eggs deep down in their burrows or weaved back and forth with a mouthful of sand-eels trying to come in to feed their young. Remember too, that this was ten years before 'Operation Seafarer', the ambitious attempt to count all the breeding seabirds round the coast of Britain. Before that operation began there was a prolonged discussion among field workers on the best ways of censusing auks and the best ways to interpret the results.

In those early days it seemed a complete waste of time even to attempt a count but gradually a compromise system was arrived at. Guillemots on ledges were counted from the boat - with all the variabilities caused by rough seas and different, sometimes inexperienced counters. Razorbills on

the cliffs were counted from above. Two people counted all Puffins on land and all Puffins, Guillemots and Razorbills on the sea. The results of intensive field work elsewhere on some Guillemot colonies have shown that the number of birds on the ledges during the morning or early afternoon in mid-June is approximately equal to the number of breeding pairs. For Razorbills we count those obviously nesting and also any pairs on the cliffs that are doubtfully breeding. Only the Puffin counts still defy interpretation and we can only compare the total numbers, breeding and non-breeding birds combined.

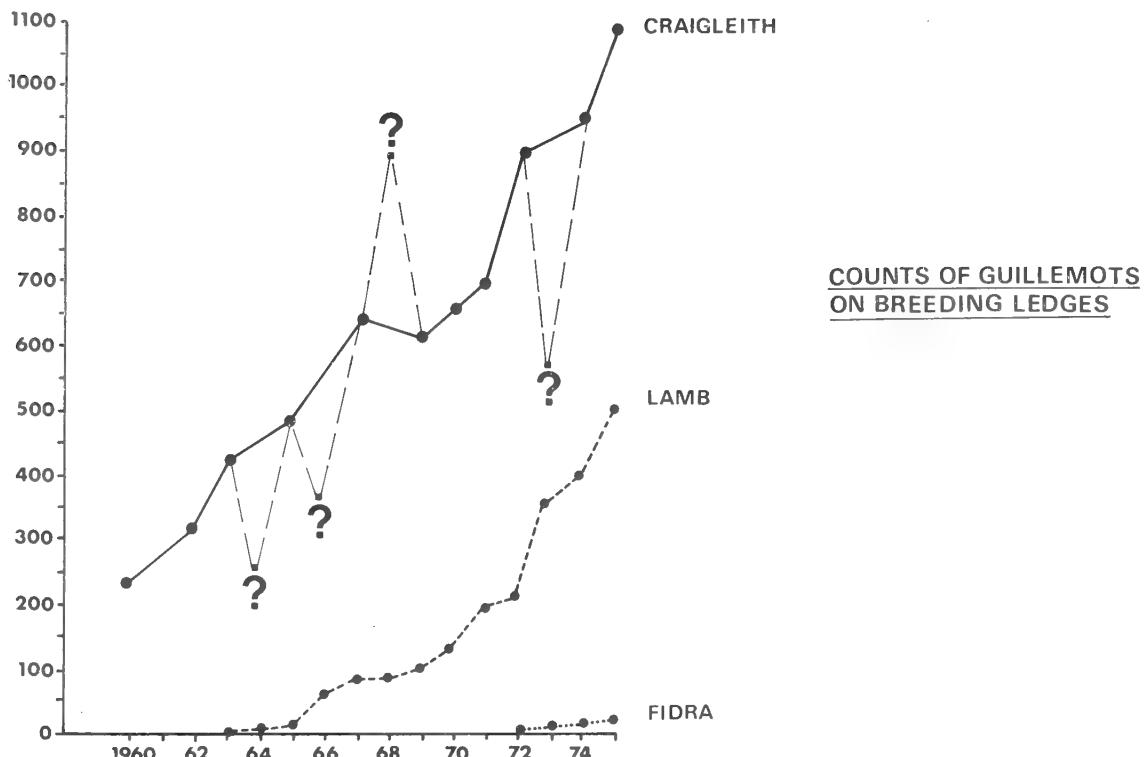
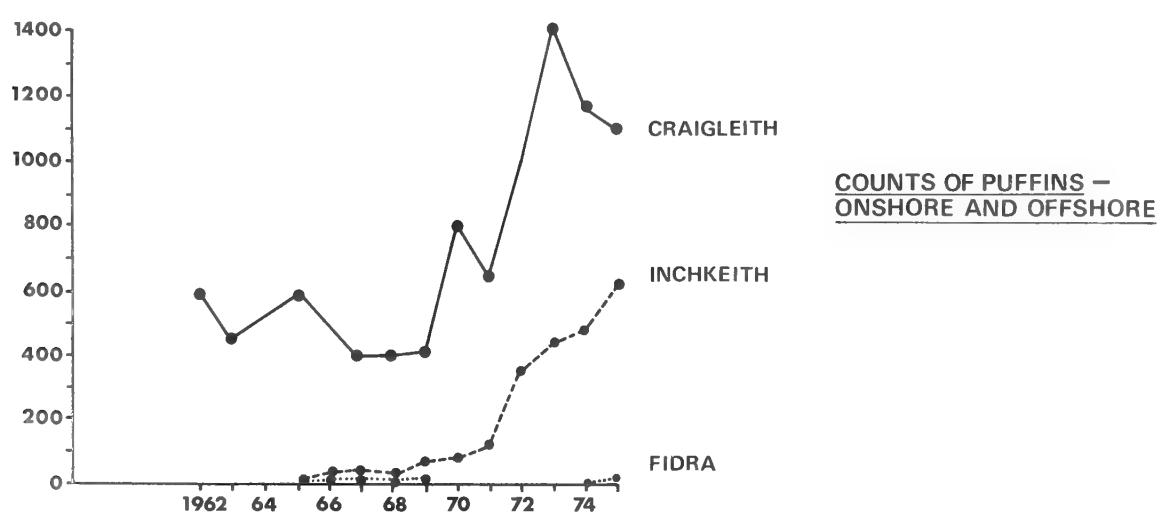
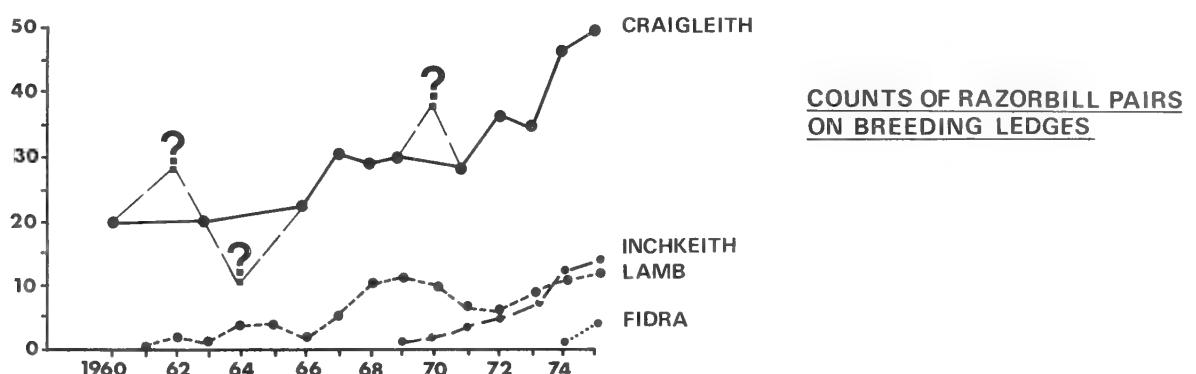
On the Lamb, Guillemots first bred in 1963. It is possible to work one's way round the cliffs there and make a reasonably good count of breeding pairs. Eggs, young and those adults obviously brooding either eggs or young, are counted. This system worked well until 1974. Now there are dense concentrations of nesting birds each with an egg or chick. When disturbed some of the adults temporarily desert their nest sites but most brooding adults remain and these afford protection against predation from Herring Gulls. These unattended eggs cannot be accurately counted without causing undesirable disturbance although a reasonable estimate can still be made. From the graph, it can be seen that there has been a steady increase during the last 12 years to 500 breeding pairs on the Lamb. Fidra was colonised in 1972 and by 1975 there were 20 pairs with eggs or young.

The Craigeleith counts of Guillemots are less reliable and four counts (shown as ?? on the graph) have been omitted from the final analysis. The sea was very rough in 1964 and also in 1968 (when there were big numbers on the cliffs and few on the sea). In 1966 there were again tremendous numbers on the sea on a calm day with a lot of disturbance by boats. Although it is rather unsatisfactory to select what one considers the 'best' counts, the modified graph does conform fairly well to the pattern of the Guillemot counts on the other islands. Assuming that the 1960 count of 240 pairs was accurate, there has been an overall average increase of nearly 14 per cent per annum.

Razorbills are much less numerous than Guillemots - perhaps between 5-8 per cent of the latter. On Craigeleith the number increased from some 20 to nearly 50 pairs 16 years later. The Lamb was colonised in 1961, Inchkeith in 1969 and Fidra in 1974. These latter two islands are potentially more suited to the species' requirements than the bare rocks of the Lamb. Generally there has been an increase from some 20 pairs in 1960 to nearly 80 pairs in 1975 - about 10 per cent per annum. On the graph, with three unsatisfactory counts (marked as ??) left out of the Craigeleith assessment, similar trends are shown on all islands.

The Puffin counts are much more erratic than the others. Many of the birds counted are non-breeding and no satisfactory formula exists for estimating breeding numbers. In 1972 the numbers round Craigeleith had dropped considerably but the next year's count of 1,400 removed any fears that the birds were decreasing! The number of birds counted has increased at an average rate of perhaps 10 per cent per annum. Non-breeders are probably in the majority but these birds should breed during the next year or two. It seems likely that the total numbers breeding will be increasing at a similar rate. Puffins were first proved breeding on Inchkeith in 1965 and the colony is thriving. In an attempt to try to relate the June counts to the size of the breeding population several counts were made there in 1975 by Dr. D.B. Langslow, Mrs. E.M. Smith and Mr. S. da Prato as follows:

21.4.75	135 birds (many others in burrows)	(D.R.L.)
18.5.75	267 birds (many others in burrows)	(E.M.S.)
22.6.75	610 birds	(E.M.S.)
28.6.75	292 occupied burrows	(S.da P.)



In mid-May all the Puffins present would be breeding birds with a big influx of non-breeders by mid-June. The count of occupied burrows would have to be made for several years, preferably with mid-May counts for comparison, before we could be reasonably sure of their accuracy. However, there seems little doubt that these two counts give a much better indication of the breeding population than the June 'head' count.

In 1974 the following table was published in the Edinburgh Ringing Group report - extended here to include 1975. It is based on the speculative assumptions that (1) there is a 10 per cent annual mortality of breeding birds, (2) that only one bird of each breeding pair is present at the count in June and (3) that half of non-breeders counted breed during the next year. The resultant 'conclusions' as to the number of breeding pairs in each year has no real validity, but is perhaps a better guide to the breeding numbers than the total 'head' count.

	Total No. of birds	Breeding pairs	Non-breeding birds
1965	10	1	9
1966	40	3	37
1967	64	12	52
1968	44	24	20
1969	80	27	53
1970	80	37	43
1971	110	44	66
1972	350	56	294
1973	450	124	326
1974	490	194	296
1975	610	274	336

It is interesting that the above speculations, concocted before the May or June (occupied burrows) counts, arrive at the same rough figure of around 270-290 breeding pairs though it would be dangerous to assert that, for this reason, the initial three assumptions are valid. A similar table worked out with the Craigmouth counts suggests that in 1975 with a total of 1,100 birds counted, there may have been 675 breeding pairs and 425 non-breeding birds. Thus there *may* be something like 950 pairs breeding on these smaller islands.

Since the last war, there has been anxiety over the welfare of our breeding auks. Guillemots, in particular, are involved in large-scale 'oiling' incidents and, with onshore winds, may come ashore in hundreds to die a lingering death. Colonies in SW England and the Irish Sea have been declining for years. It is all the more pleasing that the Forth/Farnes auks have been increasing so spectacularly. The Shag population explosion of 10 per cent per annum is noteworthy but each pair may rear two to four young each year. The auks, on the other hand, have a one-egg clutch and yet they, too, are increasing at about 10 per cent each year. Since our first counts in 1960 there has been a general increase in their numbers. During the last few years (since 1971/72) there has been a noticeable acceleration of this increase. This parallels a similar 'explosion' in the Shag population (see E.N.H.S. Journal 1974, page 26) and, as suggested there, this may perhaps be linked with the recent very mild and calm winters.

I should like to thank all our members who have supported the Island bird trips over the years. Many of them helped with the above counts.

Excursion to Loch Leven and Elie - 22nd March 1975Loch Leven

Loch Leven is one of the largest and most important inland wildfowl reserves in Great Britain. It is also regarded as the finest breeding centre for duck in Scotland.

The Loch covers an area of five square miles and with extensive shore cover, the duck tend not to be so well concentrated as on smaller waters - e.g. Duddingston, Hirsel.

On 22nd March good views were obtained from the Vane Farm Centre of Mallard, Wigeon, Tufted, Goldeneye and Shelduck. The leader was disappointed at not seeing Goosander - this being a strong Goosander loch with often over 50 birds in the area, and Shoveler and Whooper Swan were two other species perhaps unfortunate to miss.

The warden - John Sapwell - advised us that Pintail had not been seen in recent weeks but that Gadwall should be returning to breed.

At Vane Farm we observed Geese in quantity rather than quality. Over 300 birds flew low over the opposite shore - too distant to distinguish the species. After leaving Loch Leven and proceeding towards Leslie we did get a good view of Greylag.

Elie

On the shore walk from Elie to St. Monance three contrasting habitats were defined - the rocky shore near Elie, the rubbish dump area midway and finally the high ground between Newark Castle and St. Monance Church.

The rocky shore gave us the usual wader species with high number of Curlew, possibly indicating passage. Four Herons were fishing in rock pools.

The rubbish dump proved the most interesting area and gave members an insight into a typical migrant habitat with good bush cover and plenty of posts and wires to make it worthwhile for the observer! Certainly given a good east wind this locality could prove very interesting in spring and autumn. We did not see our first Wheatear of the year but we did see Goldfinches, Reed Buntings and three Stonechats.

Sea watching on the high ground yielded very little, a Gannet or two, a few Eider and some Cormorant fishing. Nevertheless, the shore from Elie to Fifeness offers good sea watching in autumn with Shearwater passage - Manx and Sooty - in late September.

C.A. Pountain

A note on the plants seen in flower

On this excursion nearly 30 plants were seen in flower in the Elie area. After the mild winter of 1975, several - such as Red Campion (*Silene dioica*), Small Nettle (*Urtica urens*), Field Madder (*Sherardia arvensis*) and Scurvy Grass (*Cochlearia officinalis*) which usually come into blossom in May or later - were flowering alongside, for example, Coltsfoot (*Tussilago farfara*), Butterbur (*Petasites hybridus*) and Celandine (*Ranunculus ficaria*) normally seen in flower in March.

J. Raeburn

Lake District Weekend 16th - 19th May 1975

On Saturday, 17th May the Nature Reserve at Hay Bridge was visited and we were shown around by Mr. J. Corfield who was a most interesting guide. The reserve had been established in memory of Mr. H. Fooks by his widow to educate young people to observe Nature and to preserve the wild life (deer in particular) of the area.

We also heard of the association the Church had with this area in the past, and there were visible signs of the old industries, such as charcoal burning, iron smelting and soap making.

Amongst the interesting things seen on the walk were Slow-worms (Slow-worm is the species of Lizard which is legless), an Adder, recognised by the dark zig-zag band running down its back, a Green Woodpecker and a clump of Early Purple Orchid (*Orchis mascula*).

Our visit coincided with that of the Vet and as help was required with the handling of a buck and two hinds Rosemary Harper was called in to lend a hand - she assisted the Vet most efficiently.

On Sunday, 18th May we started our walk on the Silurian Way in the Forest of Grizedale from Force Falls, finishing at the Grizedale Wildlife Centre. We found that we were competing with 1,200 youngsters who were doing a sponsored walk for U.N.I.C.E.F. but as the forest was so large, and the walk so well organised, our paths did not often cross.

Some of the party were treated to a wonderful view of an Adder which slipped into the path while others enjoyed the display of a Pied Flycatcher which was looking for a suitable nesting place and entertained us for a long period with its song and behaviour.

Signs of charcoal burning and iron smelting were seen along the way. There was also a well preserved pack horse bridge used when the ore was taken to the bloomery.

On Monday, 19th May the official outing in the morning was a walk around Tarn Hows, a man-made lake in a beautiful setting near Hawkshead. There was not a great deal of bird life but we had a wonderful view of a Tree Pipit which put on a special show for us as it 'parachuted' from the top of a high conifer to alight on the ground for us to see it at close quarters. In the Tarn we observed a duck which could have been either a Goosander or a Merganser. It had very unusual markings and may well have been a hybrid. On the banks of the Tarn the fungus Morel (*Morchella* sp) was found.

N. Fisher
S. Littlejohn

Eskdalemuir Visit - 24th May 1975

The chilliness of the day for our 38 members was compensated for, in large measure, by the warm welcome extended by our hosts. On arrival, Mr. Walker, Regional Manager of Economic Forestry (Scotland) Ltd, introduced his colleague, Mr. Rose, Wildlife Manager, and handed us over to Mr. Dawson who is the Senior Meteorological Officer at the Eskdalemuir Weather Observatory.

This Observatory, which the general public usually only hears about when low winter temperatures are mentioned on the news media, is a station whose purpose is the monitoring, measuring and recording of many of the physical and chemical features of the earth and atmosphere in this part of Britain.

Originally this information was obtained at Kew Observatory but it was decided to build a new Observatory in a different location when the exposure of the instruments for measuring the earth's magnetic field was spoiled due to construction of the electric tramways and the London Underground.

Fellows of the Royal Society chose the Eskdalemuir site for its remoteness and geological suitability and it has since proved a good choice. Some compensatory money was obtained from the transport authorities in London and the present buildings were commenced in 1904 and completed in 1908. The Observatory was run by the National Physical Laboratory until 1911 when it was taken over by the Meteorological Office. Then in 1968 it was placed under the wing of the Natural Environment Research Council but there has been no change in the functions of the station.

The laboratory contains a wide variety of sensitive instruments for measuring solar radiation of various kinds, wind direction and velocity, barometric pressure, humidity, air and ground temperatures, rainfall, earth's magnetic strength, seismic disturbances and pollutants such as atmospheric dust, sulphur dioxide, radioactive substances etc. The solar radiation readings are continuously recorded on punched tape which is sent at intervals to the meteorological centre at Bracknell, Berkshire for processing (along with similar information from other British weather stations) on the computers in order to build up records of the weather patterns of the country. Certain of the data from Eskdalemuir is also required by the O.E.C.D. (Organisation for European Co-operation and Development). Mr. Dawson explained that eventually relevant parts of the recorded data reach Leningrad where there is a world weather centre. In answer to a question he said that climatic conditions depend on so many factors that one day's weather can never be repeated exactly even over thousands of years. This is because climatic change, although a fairly slow process, is going on ceaselessly.

Other interesting facets of the Observatory visit was the clock, accurate to within a fraction of a second per year, which automatically registers the precise time of recorded information; and the seismograph installations for measuring earth tremors. By taking into account the results obtained from other seismographic stations (whose exact locations are, of course, known) it is possible to pinpoint the source of a tremor with reasonable accuracy.

Mr. Dawson mentioned the collection of samples of rainwater taken on behalf of other organisations and departments, such as the sample for the Atomic Energy Research Establishment, Harwell, for checking radioactivity and another for the determination of the amount of tritium in the water molecules. Tritium is the exceedingly rare hydrogen isotope of atomic weight 3.

The party then moved on to the forestry museum where Mr. Walker outlined the work of the Economic Forestry Group. This is a commercial organisation which operates throughout Britain and plans, carries out and manages afforestation or re-afforestation for private landowners. The work of the Group is complementary to that of the Forestry Commission, which is a Government Department operating on Crown land; and close relations are maintained between the two bodies. Mr. Walker said that when fully developed, the parish of Eskdalemuir covering some 30,000 acres will be the largest single timber producing area in Britain. Some hundreds of years ago the land was well covered by a mixture of native hard and soft wood with underlying shrub. The trees were later nearly all cut down for various reasons and not replaced. Sheep then grazed for about 200 years until more recent times when the financial returns for wool and sheep management generally became less attractive. Labour and shepherding problems also contributed

to this decline. Private landowners, with the normal Government grants, can now get a better return for their investment by well-planned, efficient re-afforestation and subsequent management.

Mr. Rose described the steps taken by the managers to work as closely with nature as possible. All aspects of any particular parcel of land are considered so that the best use can be made of it whilst upsetting the ecology as little as possible. It might, for example, be considered advisable to maintain an existing farm or perhaps leave a certain portion of the land in its natural state and these are explained to the landowner who is usually found to be co-operative.

On the aspect of wild life, Mr. Rose said one has to be realistic. The balance of nature is very delicate and sometimes it is necessary to be quite ruthless and thin down certain species and also stamp out diseases whenever they appear. Roe deer and Short-tailed Voles can do considerable damage to a forest in its early growth years and any culling requires great care as does the control on the number of Foxes and Short-eared Owls necessary to keep the deer and voles from becoming too numerous.

The visit concluded with a look at one part of the area which had been re-planted. Mr. Walker stressed that older methods are sometimes revised, for example, the earlier idea of planting trees in long endless serried rows is now out-dated and where possible the furrowing is changed now and again to provide greater variety and picturesqueness. The same applies to the forest paths which are given curves at appropriate places to enhance the beauty of the forest. Another feature of opening up a forest instead of, as formerly, planting dense masses of trees is that a very welcome annual financial return is gained by controlled letting for sporting activities such as shooting and fishing. The main tree planted is the Sitka Spruce (mostly from selected Canadian seeds) and a much smaller quantity of Lodgepole Pine. Sitka does well on the Eskdalemuir soil and elevation but the plantations are broken here and there with other types of Scottish trees for the reasons previously mentioned. Wild life is further attracted and enhanced by the building of dams at suitable places, which should eventually attract a wider variety of bird life to the area. The party were shown a dam in process of construction at the point where we took leave of our dedicated and enthusiastic guides.

H.S. Hughes

Joint Outing to East Lammermuir Deans - 8th June 1975

Sunday, 8th June was the date for a very successful joint excursion with the Lothians and East Stirlingshire Branch of the Scottish Wildlife Trust. The leader was SWT Branch Chairman, Jim Brownlie. The East Lammermuir Deans is a SWT reserve by agreement and was established in 1968. The reserve is situated in East Lothian on the east face of the Lammermuir Hills above Innerwick and Oldhamstocks.

The reserve is comprised of four deans (narrow valleys). Sheeppath Dean which is the source of the Aikengall Water and Burn Hope, Bladowering Cleugh and Ling Hope Deans which come together and form the source of the Oldhamstocks Burn. The rocks which outcrop in the reserve are conglomerates belonging to the Upper Old Red Sandstone Period. These conglomerates were deposited as the products of torrential stream erosion. The deans were cut initially by melt waters from decaying ice sheets about the close of the last Great Ice Age. The drainage system thus set up has continued to be used by present day drainage. Part of the clayey matrix of the conglomerate is rich in lime but the pH of the matrix does appear to vary within these deposits.

During the excursion a few of the more adventurous members of the party made their way up Sheeppath Dean. This was no easy task as the dean is very narrow in its middle stretch. At some places it is only two feet in breadth and often blocked by tree branches and other vegetation. A number of fairly deep pools were also encountered.

Leaving Sheeppath Dean the main party who had made their way along the top of the dean, were rejoined and after crossing a short stretch of moorland we entered Burn Hope Dean. This dean is far broader than Sheeppath Dean. The walls of Burn Hope Dean have been eroded into various features which include a narrow wall, round tower and pyramid and earn the dean the alternative name of Fairy Castle Dean. At several locations volcanic intrusions in the form of dykes can be seen in the walls and floors of the dean. It is in this dean that the variation in the pH value, which indicates the difference in the alkalinity or the acidity of the soil, causes most variation in the flora.

P. and G. Bell
I.F. Sime

Entomological Outing to Pressmennan - 14th June 1975

A mercury-vapour lamp was run from a portable generator in an oak wood near the Pressmennan Forest Trail car park from dusk (2300 hours) till about 0130 hours, when members went home. I stayed until dawn (sleeping in the car) with the lamp running in a trap.

Only seven species of moths were seen before 0130 hours and only one extra was in the trap at dawn. However, the species seen included the Poplar Hawk (one of each sex) and a remarkable number of bumble bees and wasps which had evidently been disturbed from an adjacent oak. Some spiders were also collected.

Pressmennan area is in a very under-recorded square and the outing produced some useful records for the British Lepidoptera mapping scheme. The cold weather was, however, most unfortunate - if the weather had been as warm as two nights earlier we should have seen about 40 species.

The list of moths seen will be filed for members by the Records Secretary.

Note on the use of mercury-vapour lamps

During the last 30 years mercury-vapour lamps of various kinds have been found to be the most successful kind of light source for attracting night-flying insects. The types that are obtainable in Britain and which have been in most common use during this period require a 230v 50 cycle supply either from the mains or, as on this field-meeting, from a portable generator: the type of lamp with a coated envelope giving a fuller colour range is much less efficient than the uncorrected type which has a strong output at the blue end of the spectrum. These lamps normally require a choke in the circuit, but the 'blended' type incorporates an incandescent element which takes the place of the choke. Both 80w and 125w lamps of these types are in use and there is little difference between them in effect. Any kind of mercury vapour lamp may be used in the open, placed over a sheet spread on the ground, or it may be incorporated in the 'Robinson' type of trap and left running all night so that the catch may be examined in daylight and then liberated. All the modern types of lamp run hot and require a shield to protect them from heavy rain which is likely to crack them. Lamps with a broken envelope may light up, but should never be used as the bare element gives out dangerous ultra-violet radiation.

More recently it has been found that small actinic tube lights which run from a 12v battery through a transistor ballast and have a high output in the ultra-violet are most effective light-sources. These form the basis of the 'Heath' trap. They run cold and rain will not break them. If they can be placed in a completely sheltered situation they can be almost as successful as 230v lamps, but attract a greater proportion of smaller insects.

E.C. Pelham-Clinton

Evening Outing to Dalmahoy Hill - 25th June 1975

Part of the excursion to Dalmahoy Hill was devoted to its geological aspect and the following is a brief account of the geology of the area.

Dalmahoy Hill is situated about a mile west of Balerno. The hill is a prominent feature, forming a long east-west ridge. Its north facing aspect consists of a cliff with a scree slope at its base. The south side of the ridge is less precipitous. At its west end and to the south lies Kaimes Hill. The rock of Dalmahoy contains the rare mineral Chlorphaeite, which changes its colour under the influence of light. Both Dalmahoy and Kaimes Hills are formed from a composite igneous sill of Lower Carboniferous age, which dips to the south.

The sedimentary strata below the sill consists of three layers of sandstone up to 34 feet thick which are interbedded with softer, fine grained beds which are now largely obscured by scree. The highest sandstone contains two highly calcareous beds which were at one time quarried for agricultural lime. Bands of shale and siltstone as well as conglomeritic bands with shale pellets and limestone fragments are found in all three layers. There were formerly large quarries for road metal in the volcanic rock of Dalmahoy and this continues in Kaimes Hill which is rapidly disappearing. There were also quarries in the limestone below for agricultural use. Diatomite up to 14 inches thick has been discovered at the edge of the peat just south of Dalmahoy Hill.

G. Bell
I.F. Sime

Ythan Estuary and Deeside Weekend 27th-29th June 1975

A very rewarding weekend was spent under the guidance of Mr. Billy Murray, of the Cultery Field Station and some of the interesting places visited included the grounds of the Field Station, the Sands of Forvie, the Bullers of Buchan, Kinleioch on the Invercauld Estate, a forest track in the Mar Forest, the River Dee and Banchory.

A variety of duck and geese were seen on the ponds of the Field Station and birds being studied by the staff included the Carrion Crow and Tawny Owl. It was during the study of a hand-reared Tawny that the staff observed that this owl could not see too well on very dark nights and concluded that it hunted at night because its food supply was more prevalent at that time rather than because it possessed keen eyesight.

The Sands of Forvie border the northern side of the Ythan Estuary and hold breeding colonies of Terns, Gulls and Eider Duck. It was good to learn that the protection work done by the Warden, with the help of volunteers, was paying dividends so far as the Tern colonies were concerned. On this beautiful stretch of sands there are colonies of around 600 pairs of nesting Sandwich Tern, built up from 40 pairs a few years back, 100 pairs each of Common and Arctic Tern and 14 pairs of Little Tern, the best record to date. Each year there is a great deal of movement of the sand dunes which involves

the re-siting of boundary fences etc. and the village of Forvie was, in fact, buried by the sand some time around the middle of the 15th Century. Fine specimens of Magellan Ragwort (*Senecio smithii*) were found in the vicinity of the Ythan; this plant as its name suggests, hails from Patagonia.

The Bullers - Bullers, a corruption of boilers, being a 'Turbulence of Water' - of Buchan consist of large circular basins open to the sea, the entrance usually spanned by a narrow bridge of rock. They are the haunt of a large number of seabirds including Fulmars, Puffins, Razorbills, Shags, Guillemots and Kittiwakes which were seen on their nests with young. There was unfortunately a great deal of egg mortality amongst the Guillemots due to the parent birds being off the nests during a very severe storm, but the Puffins had their best year to date in this region. The Burnet Rose (*Rosa pimpinellifolia*), which was growing along the cliff top, appeared to be rather stunted in growth but this was probably due to the very exposed position. Also seen was Lovage (*Ligusticum scoticum*) with its glossy leaves.

The highlight of our visit to Kinleioch, was the sighting of two male and one female Capercaillie, the scarlet skin above the eye of the males showing up clearly. The 'Cock of the Woods' was re-introduced into Scotland around 1837 but was in earlier times indigenous to this country and enjoyed by our ancestors on feast days.

Parties of young Coal Tits were seen during our forest walk as well as an all too fleeting glimpse of a Peregrine Falcon.

In the garden of one of the guest houses in Banchory where some of the party stayed, there was a great variety of trees and among the specimens examined was the Western Hemlock (*Tsuga heterophylla*) whose solitary needles are irregular in length. Comparisons were also made between the cones of Silver Fir (*Abies alba*) and Douglas Fir (*Pseudotsuga menziesii*), the former being erect and cylindrical while the latter are formed at the tips of the lateral branches, hang downwards, are elliptical in outline and have large scales with three-clawed bracts extending from the back.

Flowers which were seen along the stretch of the Dee included Scottish Lupin (*Lupinus nootkatensis*) which grows on the river shingle and has flowers of various shades of blue and purple, Musk Mallow (*Malva moschata*) with rose pink flowers, Pink Purslane (*Montia sibirica* - until recently known as *Claytonia sibirica*) and the aromatic Spignel (*Meum athamanticum*).

Among the mammals recorded were Roe and Red Deer, Weasel and Red Squirrel.

All in all, it was a most satisfying weekend which helped to remind us that it will be due to the hard work of a few dedicated naturalists and conservationists that the flora and fauna of Scotland may survive for future generations to enjoy.

A. Reddin

Visit to Regent Terrace Gardens - 2nd July 1975

The party of 25 members was led by Professor J.I.P. James of the Gardens Committee. The leader traced the history of the Gardens since their creation in 1820 and spoke of the difficulties in maintaining them in relation to the rising cost of material and labour. Much of the work done is carried out on a voluntary basis by the residents of Carlton, Regent and Royal Terraces who are the owners of the Gardens. Professor James stressed the fact that non-residents could, if they wished, have use of the Gardens for a nominal fee. The party was then conducted round the Gardens.

A rough outline of the geology of the area on part of which the Gardens lie, follows:

The Calton Hill is formed by a number of lava flows separated by ash bands belonging in time to the Calciferous Sandstone Series of the Carboniferous. These rocks formed part of the western slopes of Arthur's Seat volcanic cone, the centre of which lies more than a mile away in Holyrood Park. With the passage of ice after the last Great Ice Age, the Calton Hill with its hard resistant rocks was left with a prominent crag and tail structure. The crag which overlooks Greenside and Lower Calton faces generally to the west with the tail sloping gently to the east towards Abbeyhill. Regent Road Garden lies along the spine of the tail.

G. Bell

Ben Lawers Outing - 5th July 1975

Ten members of the Andersonian Naturalists of Glasgow led by Mr. Stirling joined this outing, and we set out from the National Trust's Visitor Centre where a display of the natural features of the area is exhibited, in itself of much interest.

The party broke up at an early stage of the steep ascent via Ben Ghlas, some making straight for the summit of Perthshire's highest mountain, some lingering on the lower slopes to enjoy the prospects in near perfect weather conditions, and others visiting the western rocks area where the flora of Ben Lawers occurs in its greatest diversity.

This was a peak time of year for viewing the classical rarities of the mountain - *inter alia* Alpine Forget-me-not (*Myosotis alpestris*), Rock Speedwell (*Veronica fruticans*), Alpine Fleabane (*Erigeron borealis*), Slender Bedstraw (*Galium sterneri*), Hair Sedge (*Carex capillaris*), Russet Sedge (*Carex saxatilis*) and Three-leaved Rush (*Juncus trifidus*), at the height of their flowering and Brittle Bladder Fern (*Cystopteris fragilis*) with ripe spores on the under surface of the frond. High up and precariously situated on the side of a rock Mr. Stirling found one plant of Alpine Sandwort (*Minuartia rubella*) - rare even here and unlikely, it seemed, to survive even the next heavy rainstorms.

Ring Ouzels (*Turdus torquatus*) were fairly plentiful and the highlight of the outing was a family of Ptarmigan (*Lagopus mutus*) - three young birds well camouflaged among the brown vegetation, with mother immobile barely six feet from the spectators and affording a splendid opportunity for the photographers of the party.

R. Begg

Note The dry spell of weather broke in the middle of July and during the weekend of 20th-21st July the heavy rainfall caused severe rockfalls in the area which had been visited by members.

The Rangers advised visitors to the centre not to go to the area until it had been assessed safe because of loose boulders. One Ranger who inspected the western rocks reported that although most of the plants had survived, the Alpine Sandwort could not be seen.

J.R.

Contributions for the 1976 Journal

Contributions for the 1976 Journal may be given to any member of the Journal Committee at any time throughout the year.

2,300 feet Below Ground - 3rd September 1975

By courtesy of the National Coal Board a small group of members were able to see how coal is produced at one of the most modern coal mines in Scotland.

Safety Officers equipped each of us with a helmet, lamp, emergency respirator and two safety tokens. One token was collected from each 'miner' before descending vertically 1,800 feet in the 'man and material' cage to the pit bottom. From here we travelled one and a half miles in open bogies, descending another 500 feet, to the roadway which led to the coal face. We had to walk along the roadway - it was rather rough and covered in grey limestone dust in order to prevent coal dust exploding.

At the coal face the headroom decreased to about three feet and we were allowed to crawl along under the hydraulic powered supports to see a coal cutting machine in action. This takes a cut 18-24 inches deep by 3 feet high and is pulled horizontally by heavy chains for a distance of 500 feet. When in operation it is very noisy and it sprays coal dust all over the place - dust went into our hair, into our eyes and down our necks.

There was a muffled explosion and in a few seconds we were engulfed in dense acrid smoke and it had become impossible to see our hands in front of our faces. The good ventilation system soon cleared the smoke and then the Safety Officer explained there was blasting at the far end of the 500 foot cut.

Time passed quickly and soon we had to make our way to the surface where we returned our equipment and the second safety token - this ensured that no one was left down below.

One or two interesting points about Bilston Colliery are:

Work was first started in 1952, but coal was not produced until 1960.

75 per cent of the coal mined is used in power stations.

Normal weekly output is 24,000 tons for which 28-30,000 tons of material have to be cut from the coal face.

There are three shifts per day with about 100 men in each.

C. Campbell

Outing to Beecraigs Country Park - Bathgate Hills - 4th October 1975

The object of this outing, led by Tony Anthony, was to show members facilities within Beecraigs Country Park, an area of over 600 acres, run in consultation with the Forestry Commission. Hunting is prohibited there.

We were shown a badger sett in grassland. The area around it had been fenced to let the vegetation grow in order to give cover to emerging badgers.

On the reservoir there were Coot, Mallard, Pochard, Tufted Duck and a Dabchick. These are being encouraged to nest. We were asked for suggestions as to how to make it more attractive for them.

The old filter beds are being used to rear trout, Common and Rainbow. The old steading of the farm is to be converted into an education centre, exhibition room, etc and a picnic area.

Within the area are many young plantings of Scots Pine, Larch, Norway Spruce, Sitka spruce and Balsam Poplar. There are also many older, mostly deciduous, trees.

T. Richardson

LIBRARY LIST, EDINBURGH NATURAL HISTORY SOCIETY LIBRARY

Armstrong, E.A.
 Blunt, W.
 Boyd, A.W.
 Bristowe, W.S.
 Butler, C.
 Clegg, M.
 Corbet, P. and Moore, N.
 Coward, T.A.

Dales, J. Phillips
 Darling, Sir F. Fraser

Edlin, H.L.
 Fisher, J. and Lockley, R.M.
 Fitter, R.S.
 Fleure, H.J.
 Ford, E.B.
 Ford, E.B.
 Free, J. and Butler, C.
 Gilmour, J. and Walters, M.
 Hardy, Sir A.

Hardy, Sir A.
 Harris, J.R.
 Harvey, L.A. and Leger-Gordon, D.St.
 Hepburn, I.
 Hosking, E. and Gooders, J.
 Hubbard, C.E.
 Hvass, E. and Hvass, H.
 Imms, A.D.
 Kelman, J.H. and Smith, C.E.
 Lorenz, K.
 Lousley, J.E.
 Macan, T.T. and Worthington, E.B.
 Manley, G.
 Matthews, L. Harrison
 Neal, E.G.
 Nicholson, E.M.
 North, F.J., Campbell, B. and Scott, R.
 Pearsall, W.H.
 Raeburn, J. and Raeburn, H.
 Ramsbottom, J.
 Raven, J. and Walters, M.
 Russell, Sir E.J.
 Salisbury, Sir E.
 Sissons, W.B.
 Smith, Malcolm
 Stamp, L. Dudley
 Stamp, L. Dudley
 Stamp, L. Dudley
 Steers, J.A.
 Summerhayes, V.S.
 Sutton, O.G.
 Swinnerton, H.H.
 Turrill, W.B.
 Vesey-Fitzgerald, Brian
 Williams, C.B.
 Wooldridge, S.W. and Goldring, F.
 Yonge, C.M.

The Folklore of Birds
 The Art of Botanical Illustration
 A Country Parish
 The World of Spiders
 The World of the Honeybee
 Sea Song
 Dragonflies
 Birds of the British Isles and their
 Eggs, Volumes I, II, III
 Annelids
 Natural History of the Highlands and
 Islands
 Trees, Woods and Man
 Sea Birds
 London's Natural History
 A Natural History of Man in Britain
 Butterflies
 Moths
 Bumblebees
 Wild Flowers
 The Open Sea I: The World of the
 Plankton
 The Open Sea II: Fish and Fisheries
 An Angler's Entomology
 Dartmoor
 Flowers of the Coast
 Wildlife Photography
 Grasses
 Mushrooms and Toadstools
 Insect Natural History
 Trees
 King Solomon's Ring
 Wild Flowers of Chalk and Limestone
 Life in Lakes and Rivers
 Climate and the British Scene
 British Mammals
 The Badger
 Birds and Men
 Snowdonia
 Mountains and Moorlands
 Anatomy, Physiology and Hygiene
 Mushrooms and Toadstools
 Mountain Flowers
 The World of the Soil
 Weeds and Aliens
 The Evolution of Scotland's Scenery
 British Amphibians and Reptiles
 Britain's Structure and Scenery
 Man and the Land
 Man and the Land (second copy)
 The Sea Coast
 Wild Orchids of Britain
 Understanding Weather
 Fossils
 British Plant Life
 British Game
 Insect Migration
 The Weald
 The Sea Shore

Books for general borrowing are listed opposite. They may be borrowed at any time for periods of one month, at a small charge to cover the cost of binding in plastic covers, etc. Field Work Guides below may be used out of doors, as they are cheap and more easily replaced. Reference books are not for general borrowing, most of them are kept with the Records Secretary, who uses them for Society purposes. They may be consulted by any member.

Field Work Guides

Boorer, M.	Mammals of the World
Clegg	Observers Book of Pond Life
Jones, H. Trevor	Insects and Spiders
Kershaw, K. and Alvin, K.	Observers Book of Lichens
Landin	Insekter Farg
Lyneborg, L.	Mammals in Colour
Matthews, L. Harrison	British Amphibians and Reptiles
Schruter	Flore des Alpes
Ursing, B.	Fälteflora

Reference Books

Clapham, Tutin and Warburg	An Excursion Flora of the British Isles
Dandy, J.E.	List of British Vascular Plants
Romer, A.S.	Man and the Vertebrates (2 volumes)
Savory, T.	Animal Taxonomy

TRANSACTIONS OF THE EDINBURGH FIELD NATURALISTS AND MICROSCOPICAL SOCIETY

The E.N.H.S. is trying to assemble a complete set of the old transactions. If any member has any parts, no longer wanted, or knows where any parts are obtainable the Librarian would be grateful to know of their whereabouts. Arrangements would then be made to receive them.

